HEALTH BUILDING NOTE **40**

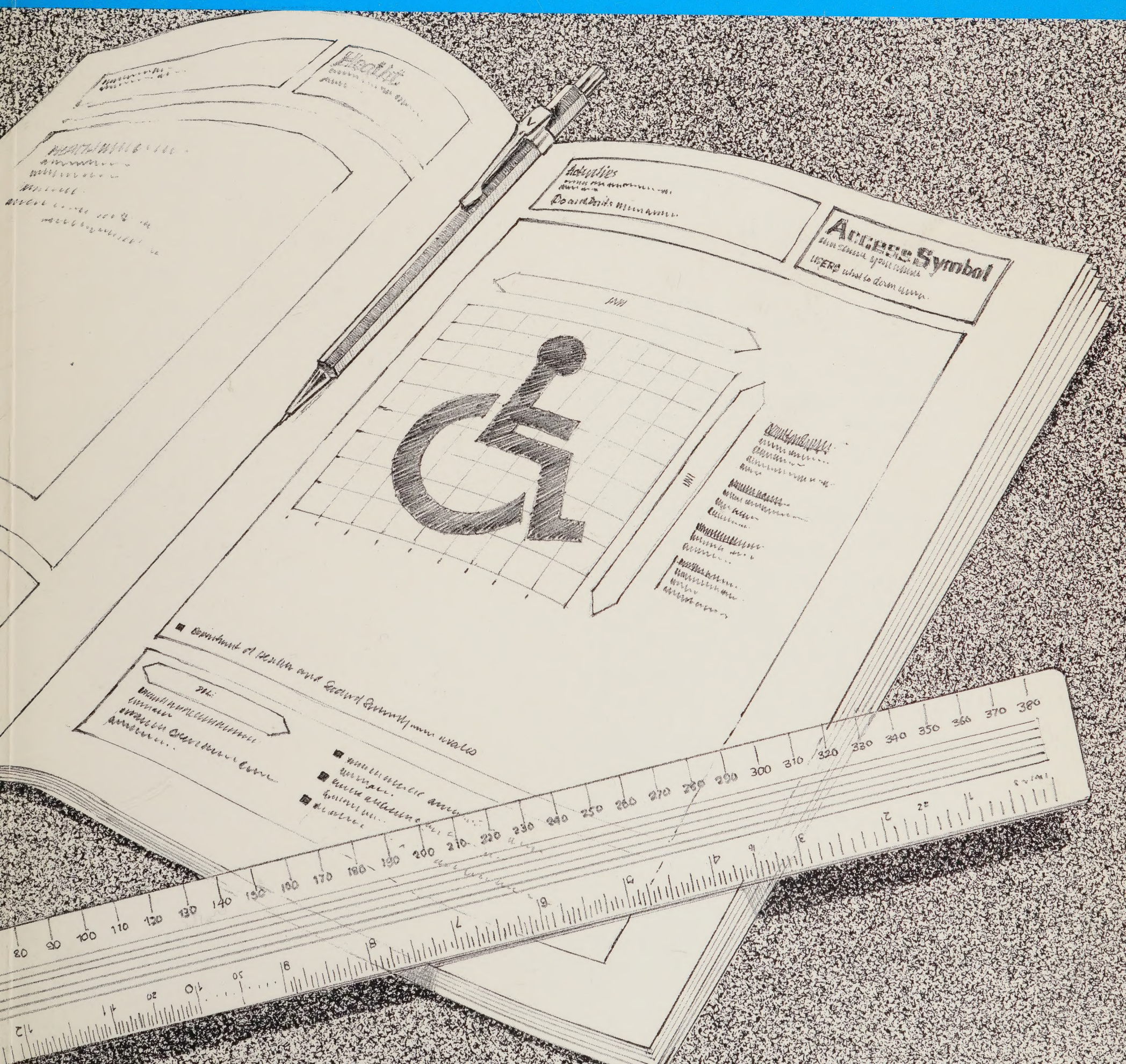
MCO 150

Common Activity Spaces

VOLUME 4

Designing for Disabled People

DEPARTMENT OF HEALTH
WELSH OFFICE



Health Building Notes

Preface

Health Building Notes (HBN) are guides for those responsible for the briefing and design stages of schemes for providing new, or adapting or extending existing health buildings. Alternative solutions and their cost implications are discussed where appropriate. Departmental Cost Allowances are based on the standards described in each HBN.

The first three HBNs in the series provide a general review of the planning of health buildings, and should be read by all those who are new to the subject:

HBN 'Buildings for the Health Service' describes the planning, construction and commissioning of a health building, and introduces the reader to Departmental publications on all aspects of building.

HBN2 'The Whole Hospital' (in preparation) describes the preparation of a brief for a health building and explains how the stages of the process may be related to the mandatory requirements of Capricode.

HBN3 'The Design of the Hospital' (in preparation) deals with the preparation of the Development Control Plan (DCP) – the 'master plan' for the hospital.

Subsequent HBNs in the series deal with individual departments and in each Note the functions, activities, equipment, environmental conditions, engineering services and dimensions which are critical to the efficient performance of an activity are identified and discussed. In these Notes it is assumed that the reader is broadly familar with the introductory volumes.

Guidance on spaces common to all health buildings is presented in the four volumes which comprise HBN40 'Common Activity Spaces'.

HBNs are usually published with a companion Design Briefing System Notebook which considerably facilitates the project team's task of translating the guidance in the related Note into a brief for designers. The value, purpose and structure of Design Briefing System Notebooks are described in DBS1 'An Aid to Briefing'.

HBNs are prepared in consultation with representatives of the National Health Service and appropriate professional bodies.

Contents

		Page
Preface		Inside front cover
Scope of Health Building Note		
1.1	Introduction	3
1.7	Scope and related considerations	3
1.9	Amenities for disabled people	3
1.15	Statutory and other requirements	4
1.17	Statutes and guidance specific to disabled people	4
1.18	Fire precautions	4
1.23	External environment: parking areas	4
1.25	Internal environment	5
1.28	Vertical transportation	5
1.29	Ergonomic Data	5
Appendices		
1	Fire Precautions	6
2	Ergonomic Data Sheets: Notes on critical dimensions	8
Figures		
AMBULANT CIRCULATION		
1	Person walking, assisted	10
2	Person walking, crutches	11
3	Person walking, tripods	12
4	Person walking, frame	13
5	Person walking, handrail	14
	Car Parking	
6	Car parking, wheelchair	15
7	Car parking, ambulant disabled	16
8	Car parking notes	17
	Stairs, Ramps, Lifts	
9	Stepped approach	18
10	Internal staircase	19
11	Ramp	20
12	Dropped kerb	21
13	Lift controls	22
14	Lift 630 kg	23
15	Lift 1,000 kg	24
	Wheelchairs	
16	Wheelchair users—reach	25
17	Wheelchair dimensions	26
	Dimensioning of Spaces for Wheelchair Use	
18	Straight movement	27
19	Turning	28
20	Approach door, frontal	29
21	Approach door, lateral assisted	30
22	Approach sliding door, lateral	31
23	Approach sliding door, frontal	32
24	Parking, side by side	33
25	Parking, end to end	34
26	Lobby, single doors	35
27	Lobby, double doors	36
28	Lobby, automatic sliding doors	37
	Miscellaneous	
29	Grabrail (2)	38
30	Door ironmongery	39
31	Doors	40
32	Switches and sockets	41
33	Telephone booth	42
34	General reception counter	43
35	General reception counter	44
36	General reception counter, notes	45
37	Signposting (1)	46
38	Signposting (2)	47
39	Signposting (3)	48
SANITARY ACCOMMODATION		
	WC Wheelchair use	
40	Single side access 1	49
41	Single side access 2	50
42	Single side access 3	51
43	Notes for above	52
44	Dual access 1	53
45	Dual access 2	54
46	Disabled staff WC(1)	55
47	Disabled staff WC(2)	56
48	Disabled staff WC, notes	57
49	Semi ambulant WC	58
50	Shower partially capable patients/wheelchair	59
51	WC/shower (bidet) (1)	60
52	WC/shower (bidet) (2)	61
53	WC/shower with transfer seat—detail 1	62
54	WC/shower with transfer seat—detail 2	63
55	WC/shower with transfer seat—detail 3	64
56	WC/shower with transfer seat—detail 4	65
57	Notes for above 4 figs	66

		Page
58	Shower, assisted wheelchair 1	67
59	Shower, assisted wheelchair 2	68
60	Basin, medium	69
61	Basin, handrinse	70
62	Bath, wheelchair access	71
63	Bidet	72
64	Mirror	73
65	Taps 1	74
66	Taps 2	75
67	Taps 3	76
68	Bathroom 1, ambulant and wheelchair patients	77
69	Bathroom 2, ambulant and wheelchair patients	78
70	Bathroom 3, ambulant and wheelchair patients	79
71	Bathroom 4, ambulant and wheelchair patients	80
72	Assisted bathroom 1	81
73	Assisted bathroom 2	82
74	Assisted bathroom 3	83
75	Treatment bathroom	84
76	Patients Hoist/sling 1	85
77	Patients Hoist/sling 2	86
78	Patients Hoist/chair 1	87
79	Patients Hoist/chair 2	88
80	Patients Hoist/mobile chair 1	89
81	Patients Hoist/mobile chair 2	90
82	Patients Hoist/mobile chair 3	91

FURNITURE & FITTINGS

83	Door screen	92
84	Worktop bench	93
85	Refrigerator	94
86	Cooking hob	95
87	Ironing board 1	96
88	Ironing board 2	97
89	Oven	98
90	Sink 1	99
91	Sink 2	100
92	Sink 3	101
93	Table 1	102
94	Table 2	103
95	Table 3	104
96	Table 4	105
97	Table 5	106
98	Table 6	107
99	Table 7	108
100	Table and chair	109
101	Desk	110
102	Doors	111
103	Washing machine	112
104	Washing machine, notes	113
105	Low partition	114
106	Shelving	115
107	Cupboards	116
108	Drawers	117
109	Notes for above 3 figures	118
110	Bed 1	119
111	Bed 2	120
112	Wardrobe	121
113	Windows	122
114	Chair 1	123
115	Chair 2	124

BEDROOMS

116	Single bedroom 1	125
117	Single bedroom 2	126
118	Single bedroom 3	127
119	Double bedroom	128

CONSULT/EXAM ROOMS

120	Consulting room	129
121	Consulting/examination room	130
122	Planting beds 1	131
123	Planting beds 2	132
124	Planting beds 3	133

Appendix

3	Health Care Premises Check-List	134
	References	136
	Further reading	138
	Index of subject headings	139

1 Scope of Health Building Note

Introduction

1.1 This document is the fourth volume of Health Building Note 40: 'Common Activity Spaces' which provides guidance on activity spaces frequently occurring in common form in health buildings.

1.2 Volume 1—gives detailed ergonomic data on a variety of clinical, sanitary and administrative spaces and is related to information in Activity Data Sheets specifically prepared to complement that Volume.

1.3 Volume 2—deals with horizontal hospital circulation and communication spaces (ie corridors and ramps). It provides guidance on the planning and design of traffic routes both within and between hospital departments. Particular emphasis is given to the space requirements for the movement of people, goods and equipment.

Volumes 1 and 2 were issued with HN(85)1 in February 1985.

1.4 Volume 3—covers vertical hospital circulation and communication spaces (ie lifts and stairways) and provides complementary guidance to that in Volume 2. It also deals with the technical engineering requirements for the installation of lifts for both passengers and goods.

1.5 This volume, Volume 4, is a collection of Ergonomic Data Sheets compiled by the Department's Ergonomic Group. These draw together all available guidance and ergonomic information on designing for disabled people in health buildings providing medical care and for certain Local Authority Social Services buildings.

1.6 There is no direct cost allowance applicable to the individual activity spaces dealt with in Volume 4. However, where such an activity space occurs in a hospital department, its cost will be included in the Departmental Cost Allowances associated with the HBN covering that department.

Volumes 3 and 4 are issued simultaneously with HN(88)27 and LASSL(88)9.

Scope and related considerations

1.7 Althought this guidance is primarily applicable to health buildings providing medical care, it will also be beneficial for certain Local Authority Social Services buildings. Some buildings will also be places of work for disabled people who will benefit from the general access provisions included in this guidance, but any special equipment or facilities at their work position are not dealt with specifically here.

1.8 Opportunities for disabled people to participate in all aspects of the public and working life of the community are being progressively broadened. Disabled people may attend and use health buildings in a variety of guises as patients, visitors, or members of the staff of a Health Authority. They may be alone or accompanied by others. Whatever the circumstances, the design of any health building should seek to provide a barrier-free environment that enables all patients, staff and members of the public, disabled or able-bodied, to circulate safely and comfortably, and to make full use of its facilities.

Amenities for disabled people

1.9 The following disabilities are considered:

a. non-ambulant—persons confined to a wheelchair, who may propel themselves independently, or who may require to be pushed and manoeuvred by an assistant;

b. semi-ambulatory—persons who walk with difficulty or are otherwise insecure (amputees, arthritics, etc), and who may walk with or without a walking aid (braces, crutches, walking frames, etc), or who may require the assistance of another ambulant person;

c. poor co-ordination—persons with neurological difficulties which result in faulty co-ordination of limbs (paralysis, brain or nerve damage);

d. sight—the totally blind or partially sighted;

e. hearing—the totally or partially deaf (inability to hear normal communication, especially warning signals).

1.10 The Ergonomic Data Sheets (see paragraph 1.29 and Appendix 2) are principally concerned with space and the problems associated with impaired mobility (ie moving around in a wheelchair and reaching or working from it) and its effect on the person's ability and convenience in the use of a builidng, components or items of equipment.

1.11 In the terms of circulation, wheelchair movement is seen as the most critical. The needs of the semi-ambulant disabled are generally, but not invariably, unlikely to exceed the space needed to manoeuvre a wheelchair. Exceptionally, equipment (shoulder crutches) or the need for assistance (two persons assisting) will require more space for unimpeded movement than is required by the wheelchair.

1.12 Provisions in health buildings should, preferably in all cases, accommodate both independent and assisted wheelchair movements. Independent wheelchair users require more generous activity space width, whilst assisted

wheelchair movements demand greater length (or depth) of space and consequently a larger overall turning space.

1.13 The material in the Ergonomic Data Sheets will accommodate most standard manually propelled chairs, also electric indoor wheelchairs; but not electric outdoor models which customarily require larger manoeuvring spaces—between 10% and 15% larger than the figures shown.

1.14 In accommodating disabled people, identifying and understanding the conditions which constitute barriers to the handicapped is a fundamental requirement. A systematic review of layouts, component relationships and the use of individual components may need to be undertaken to evaluate the adequacy and performance of design proposals.

Statutory and other requirements

1.15 Health Circular HC(88)60/HC(FP)(88)29(50) issued in December 1988, advises health authorities that their building schemes should comply with the requirements of building legislation, even where these are not legally enforceable against authorities, and with all other relevant codes of practice standards. It also requires authorities to ensure they have adequate procedures to ensure compliance. Attention is also drawn to HC(86)14[1] concerning Food Hygiene and Pest Control in the Health Service, and HC(87)3[2] concerning Health and Safety at Work: Crown Immunity. These give the practical implications of the change in the law on Crown Immunity. This note takes account as far as possible of all statutory and other requirements currently in force but health authorities are reminded of their responsibility for ensuring compliance with statutes, regulations, codes and standards.

1.16 This Note contains data limited to ergonomic requirements for movement of hospital patients and equipment. However, where the Statute, Approved Documents, British Standards, HTMs, etc give additional requirements, eg larger dimensions etc, these should be complied with.

Statutes and guidance specific to disabled people

1.17 It is essential to ensure that suitable access and facilities are provided for disabled people who have problems of mobility or orientation, this includes, besides the wheelchair-bound, those who for any reason have difficulty in walking and those with a sensory handicap such as a visual or hearing impairment. Authorities are reminded of the need to comply with the provisions of the Chronically Sick and Disabled Persons Act 1970[3] as amended by the Chronically Sick and Disabled Persons (Amendment) Act 1976[4], the Disabled Persons Act 1981[5] and The Building (Disabled People) Regulations 1987[6]. Attention is also drawn to BS 5810: 1979 'Access for the Disabled to Buildings' (under review)[7]. One of the effects of the 1981 Act is to apply this British Standard to premises covered by the 1970 Act, which includes those open to the public. Practical guidance for complying with The Building (Disabled People) Regulations is issued by the Department of the Environment under Approved Document M: Access for the Disabled[8]. In the case of housing, attention is drawn to BS 4619: Code of Practice for the Design of Housing for the Convenience of Disabled People[9].

Fire precautions

1.18 Fire precautions apply to new buildings as well as to existing buildings which are altered or upgraded. It is particularly important at the earliest planning stage to consider in relation to the whole accommodation:

a. structural fire precautions;
b. alarm and detection systems;
c. means of escape and access for fire fighting;
d. fire fighting equipment.

1.19 Fire precaution requirements will generally affect (sometimes radically) the architect's design and the engineers systems. Both should discuss and verify their proposals with the Local Fire Authority (or Home Office in the case of offices, shops and factories, since these premises may need a fire certificate). Health Authorities are reminded of their responsiblility for obtaining fire certificates for the designated parts of hospitals.

1.20 It is essential that all Health Service designers, whether in-house or consultants, implement all statutes and all guidance on the fire precautions relevant to the premises being designed. Guidance issued by the Department of Health, the Department of the Environment and the Home Office is listed in Appendix 1. This guidance is revised or re-issued from time to time. Legislation is altered, amended, repealed, etc. The currency of all documents must therefore be checked at the time of design.

1.21 Certain mixed occupancies may necessitate the application of more than one statute and more than one guidance document.

1.22 Project teams and all other staff need to be made aware of the fire strategy for the design, in terms of staff responsibilities, together with the specific measures designed into the building and into the surrounding external works.

External environment: parking areas

1.23 Special parking spaces are required for cars and ambulances. Spaces should be of sufficient size, both in width and length, to allow unobstructed access and egress for vehicles used by disabled people whether ambulant, or in wheelchairs, alone or assisted. In particular, this will require the allocation of considerably more space alongside each parking space to permit manoeuvring of wheelchairs and transfer of disabled persons to and from cars. Some cars are specially adapted with electro-mechanical transfer equipment which is installed in place of some of the car's normal seating arrangements. The parking and setting down areas should be level, near to building entrances and located to allow the users to reach the entrances without impediments, such as changes in levels at traffic crossing points. The setting down area for ambulances should be under cover.

1.24 Well drained, slip resistant surfaces are required. Any cross-overs should be ramped. External doorways should be either free from thresholds and steps, or if a change in level is necessary, a suitable ramp will be

required. The doorway should be wide enough to allow unobstructed passage of wheelchair patient users.

Internal environment

1.25 Sufficient space should be provided for the movement of wheelchair users, ie passage through doors, along corridors and turning and manoeuvring in lobbies, toilets, changing areas and lifts. Changes in levels should be avoided and ramps provided where this is unavoidable. The space where a change in level occurs should be particularly well lit.

1.26 In order to help the ambulant disabled person there should be easy-grip handrails on both sides of a corridor. Self-closing doors should be easy to open and capable of being temporarily restrained while the disabled user is passing through. Avoidance of projections and obstructions is particularly important to blind and partially sighted patients. Large glass areas should be clearly marked. Careful consideration should be given to the directions of door swings, radiators, fire appliances, call points and notice boards.

1.27 Vertical space considerations will include the positioning of any fitting or equipment likely to be used by the disabled. This will include shelves, door handles, telephones, switches, handrails, grab rails, wash basins, soap dispensers, mirrors, coat hooks and paper towel dispensers. Reception desks should always be designed so as to allow their unobstructed use from wheelchairs. Both horizontal and vertical space considerations are detailed in the Ergonomic Data Sheets included in this Note (Appendix 2).

Vertical transportation

1.28 BS 6440: 1983 is a code of practice entitled Powered Lifting Platforms for use by Disabled Persons[10]. These platforms have a short rise travel not exceeding 1.98 m. They offer an alternative solution to the use of a ramp where there may be difficulties with space allocation for use in both external or internal environments. An international safety standard is in preparation by International Standards Organisation, Technical Committee 178, dealing with the same topic.

Ergonomic Data

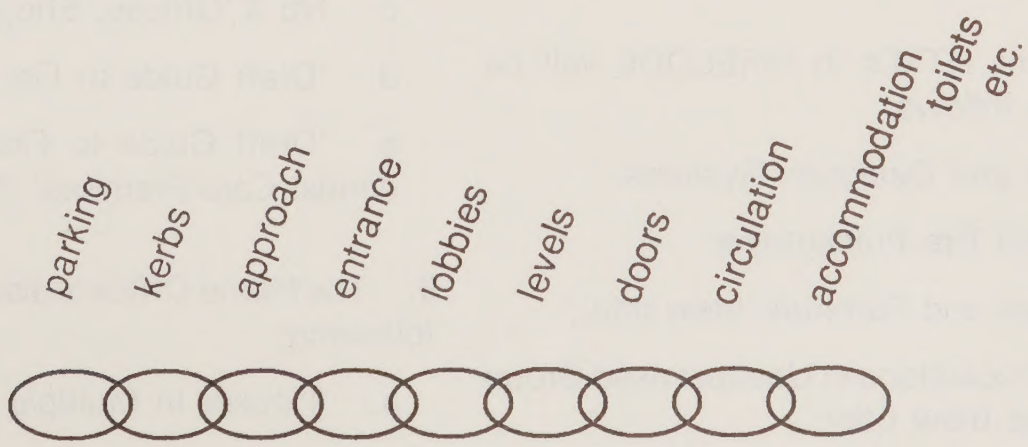
1.29 A small ergonomics studies group, part of the Department's Health Building Directorate (HBD), has been providing ergonomics advice to the National Health Service. This information has been used extensively in planning exercises which have produced cost and design guidance for hospital departments and for other health and personal Social Service buildings. The recorded data is presented on A4 size Ergonomic Data Sheets. This Data is, therefore, the product of a continuous process of literature research, user requirement studies and mock-up studies. The latter are carried out 'on location' in buildings in use. Since 1979, selected Ergonomic Data Sheets have been appearing in the Department's Health Building Notes and these have been welcomed by client and design professions in the NHS.

1.30 Ergonomic Data Sheets in 'Common Activity Spaces' HBN 40, Volumes 1[11], 2[12] and 3[13], which are relevant to disabled people, have been included in Volume 4 for completeness.

1.31 Since publication of Volumes 1 and 2, a demand for further and more comprehensive Ergonomic Data in particular subject areas has been identified, applicable to all health buildings. Hence the selection of Data Sheets presented in this Health Building Note. Some of the Sheets have been, or will be, published in a variety of Health Building Notes, but some will not appear in any publication but this one. They have been brought together here to provide the facility designer, client and user with the most comprehensive source available within the Department of Health on the ergonomic requirements of disabled people and the equipment they use as part of their stay and treatment in health buildings.

1.32 Much of the data concerns 'space' needed by disabled people when using buildings or receiving therapy. A considerable body of material covers access to and egress from (and movement within) hospital buildings, which are 'public buildings' as defined by the British Standards Institution Code of Practice BS 5810 'Access for the Disabled to Buildings'[7]. The Code particularly states in its foreword that "In the case of certain building types..., for example health, welfare (buildings), the Government Departments concerned recommend standards of provision... for disabled people. In certain instances their recommendations are more stringent than those in this Code". This HBN should be seen as an expression of those higher standards and as an assurance to disabled people that their needs are given priority in health buildings.

1.33 Appendix 3 has been prepared by the Access Committee for England and is commended to Health Authorities. The Committee has also suggested the following chain/sequence of activities to be followed in the planning and design for the disabled.



Appendix 1 Fire Precautions

Statutory Requirements

1. All statutory requirements must be complied with. Particularly important examples are:

a. The Building Act 1984;[14]
b. The Building Regulation 1985;[15]
c. The Fire Precaution Act 1971.[16]

Guidance issued by the Department of Health

2. The Department of Health has issued guidance which is contained in FIRECODE as follows:

a. Policy and Principles;[17]

b. Directory of Fire Documents;[18]

c. Nucleus Fire Precautions Recommendations (1st Edition);[19]

d. HTM81 Fire Precautions in New Hospitals;[20]

e. HTM82 Fire Alarm and Detection Systems;[21]

f. HTM83 General Fire Precautions;[22]

g. HTM86 Assessing Fire Risks in Existing Hospital Wards;[23]

h. HTM87 Furniture, Furnishing, Bed Assemblies, Apparel;[24]

j. HTM88 Fire Precautions in NHS Housing in the Community for Mentally Handicapped (or Mentally Ill) People;[25]

k. Fire Practice Notes (FPNs) No's:
1. Laundries;[26]
2. Storage of Flammable Liquids;[27]
3. Escape bed Lifts.[28]

3. FIRECODE will be extended by issue of the following:

a. HTM84 Draft Fire Precautions in New Residential Care Premises;[29]

b. Fire Practice Notes (FPNs) No's:
4. Kitchens;[30]
5. Boiler and Incinerator Rooms;[31]
6. Laboratories.[32]

4. Some of the present HTM's in FIRECODE will be revised and re-issued as follows:

a. HTM82 Alarm and Detection Systems;

b. HTM83 General Fire Precautions;

c. HTM87 Textiles and Furniture (new title);

d. HTM88 Fire Precautions in Unsupervised Group Homes (new title);

e. Nucleus Fire Precautions Recommendations (2nd Edition).

5. Detailed information for the selection of specific fire resisting components and fire signs are given in:

a. HTM56 Partitions;[33]
b. HTM57 Internal Glazing;[34]
c. HTM58 Internal Door Sets;[35]
d. HTM59 Ironmongery;[36]
e. HTM60 Ceilings;[37]
f. HTM65 Signs.[38]

These HTMs are not part of FIRECODE because they deal with general subjects.

6. The Department also published 'The Agreement for the Appointment of Architects, Quantity Surveyors, Structural and Service Engineers for Commissions in the NHS'.[39] This Agreement contains Design/Construction Certificates, which include conformity with Health Service Fire Standards.

Guidance issued by the Department of the Environment

7. The Department of the Environment has issued practical guidance to the Building Regulations and the following which affect various aspects of structural fire precautions, means of escape etc:

a. Approved Document B 'Fire Spread';[40]

b. Approved Document J 'Heat Producing Appliances';[41]

c. Approved Document K 'Stairways and Ramps';[42]

d. 'Mandatory Rules for Means of Escape in Case of Fire'.[43]

Guidance issued by the Home Office

8. The Home Office has issued guidance to the Fire Precautions Act 1971 as follows:

a. No 1 'Hotels and Boarding Houses';[44]

b. No 2 'Factories';[45]

c. No 3 'Offices, Shops and Railway Premises';[46]

d. 'Draft Guide to Fire Precautions in Hospitals';[47]

e. 'Draft Guide to Fire Precautions in Existing Residential Care Premises'.[48]

9. The Home Office is also preparing fire guidance on the following:

a. 'Houses in Multiple Occupation';

b. 'Guide to Fire Precautions in Places of Work that require a Fire Certificate';

c. 'Code of Practice for Fire Precautions in Factories, Offices, Shops and Railway Premises not required to have a Fire Certificate.'

Checking the currency of guidance

10. Guidance issued by the Department of Health, The Department of the Environment and the Home Office is revised or re-issued from time to time. Legislation is altered, amended, repealed, etc. The currency of all documents must therefore be checked at the time of the design.

11. Details of relevant legislation and guidance are held on commercially available Registers. These Registers include the actual fire precautions documents which can be viewed on accompanying microfiches. The Registers (which are updated every four months to maintain currency) are:

a. Department of Health Register of Building Legislation Design, Operation and Maintenance;[49]

b. Department of Health Register of Departmental and Advisory Documents.[49]

12. The Register at (b) above contains a numerical list of Code of Practice (CP) and British Standards (BS) dealing with 'fire'. This list updates the list printed in FIRECODE: Directory of Fire Documents. Some of these CPs/BSs are cited in statutes and/or guidance documents.

Appendix 2 Critical dimensions

Introduction

1. Critical dimensions are those dimensions which are critical to the efficient functioning of an activity; thus the size of components, their position and the space around them may all be critical to the task being performed. Guidance on these dimensions for a particular activity is provided in the form of *component – user data sheets*. These illustrate components, ie equipment, furniture and fittings, and provide ergonomic data on the space required for users to move, operate or otherwise use the component; information about the component, eg fixing heights, and the users, eg reach, is also provided. Component-user data sheets thus complement the information given on Activity Data 'B' sheets.

Component dimensions

2. These relate to the size and position of components as follows:

a. Sizes of components are shown thus

500

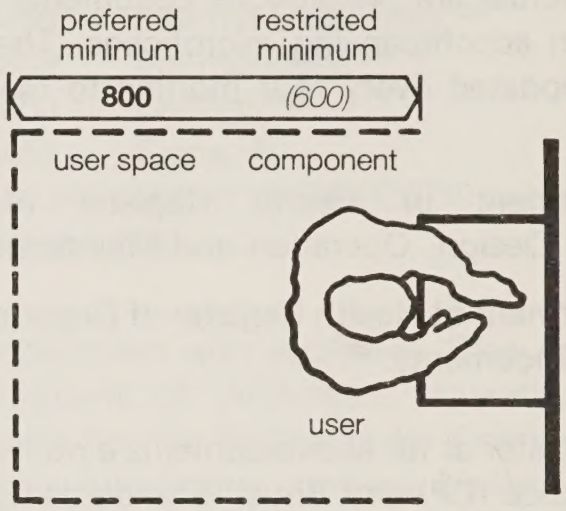
b. Preferred component fixing heights are shown as heights above floor level thus

1000
1000-1300

(In some cases an acceptable range of fixing heights is also given in italics.)

Activity dimensions

3. Activity dimensions define the user space, which is the minimum space required to perform an activity. Two types of activity dimension are given:

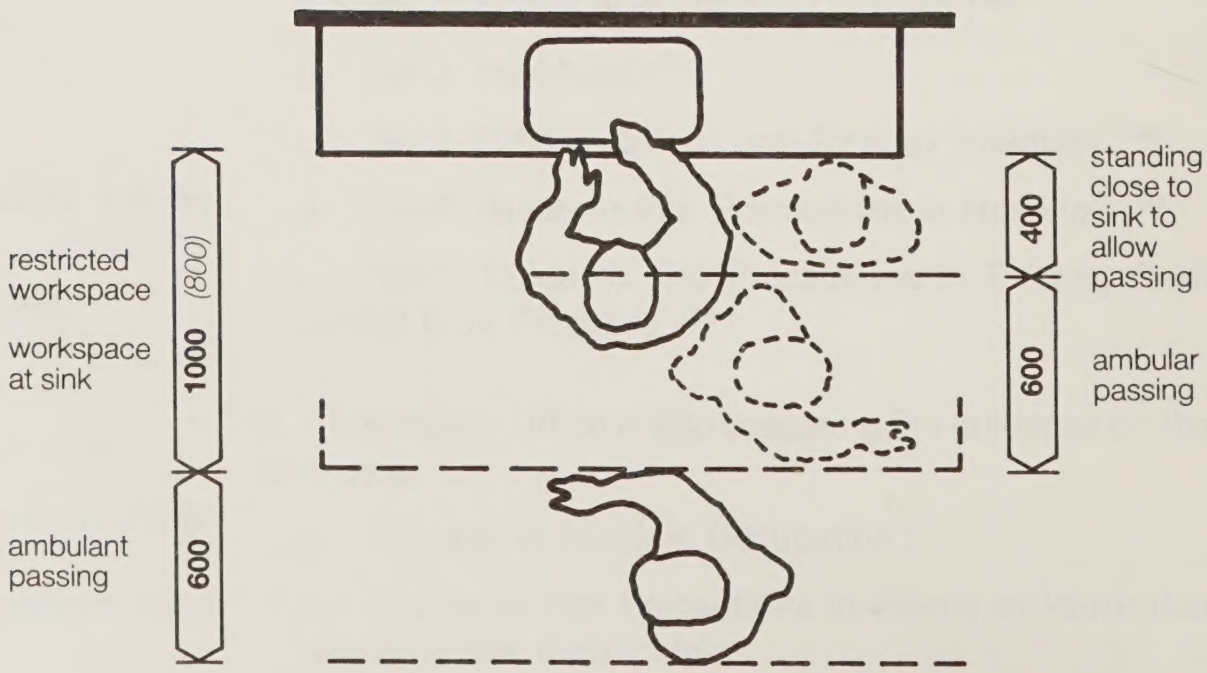


a. Preferred minimum – This defines the minimum space required to carry out an activity efficiently and is shown in bold type;

b. Restricted minimum – This will only allow the activity to be performed at the expense of the user experiencing some difficulty. It is not recommended for general application but may be appropriate when considering the overlapping that can be allowed when two user spaces are adjoining.

Selection of activity dimensions

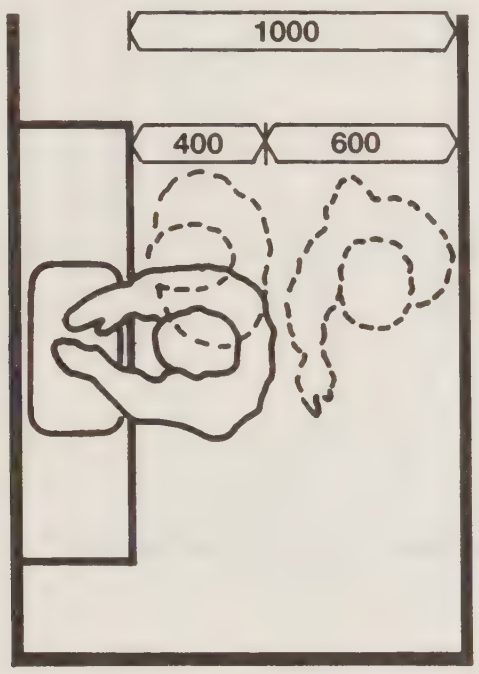
When using component-user data sheets to design activity space layouts, selection of the appropriate activity dimensions is essential for economy and efficiency. Selection should be based on careful consideration of the frequency, duration, timing and importance of the activities and also the number of people involved. A typical example of the use of a sink showing activity dimensions provided by the component user data sheet is shown below.



Examples

4. The following worked examples show the sink being used in 3 different situations and show how the appropriate dimensions would be selected but do not necessarily relate to this particular building guidance. These examples have been simplified and additional factors such as the movement of mobile equipment may also be critical.

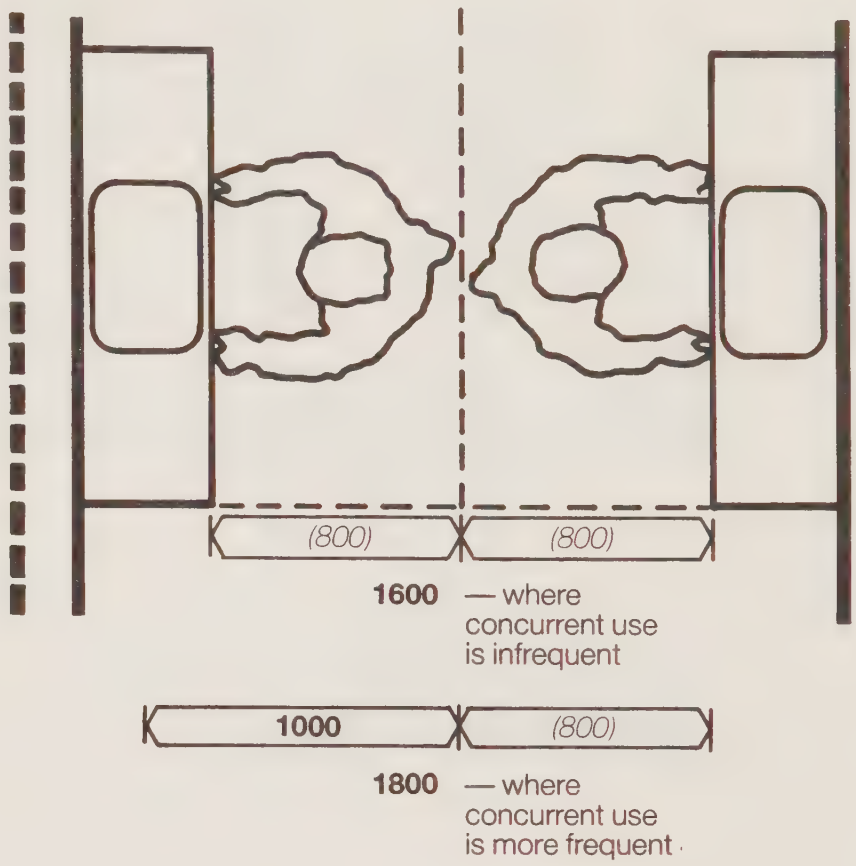
a. If the room is normally occupied by one person only the 1,000 workspace dimension may be applicable. An (800) restricted dimension should not be used as this dimension is only applicable where two user spaces are adjoining, not where an individual user space is bounded by a wall or solid obstruction. If the person using the sink stops work and stands close to the sink, 1,000 is also sufficient space to allow a second person to pass, ie 600 + 400.



b. If space is required to allow a person to pass, without the user of the sink stopping work, then the 600 passing dimension is added to the workspace dimension. If passing is infrequent then temporary restriction of the sink user's space may be acceptable; this gives an overall dimension of 600 + (800) = 1,400. If passing is frequent and restriction of the sink user's space is not acceptable the overall dimension is 600 + 1,000 = 1,600.

c. Where space has to be provided to enable two sinks to be used concurrently the overall dimension between sinks will be the sum of the workspace dimensions, eg if concurrent use is infrequent and of short duration then (800) + (800) = 1,600 may be acceptable. Alternatively 1,000 + (800) = 1,800 allows the full workspace for one sink user and restricted space for the second user, where concurrent use of the sinks is more frequent.

Note. The passing of a third person between the two sink users may also be critical in this example. Where the sinks are staggered 1,400 may be acceptable as in example b.

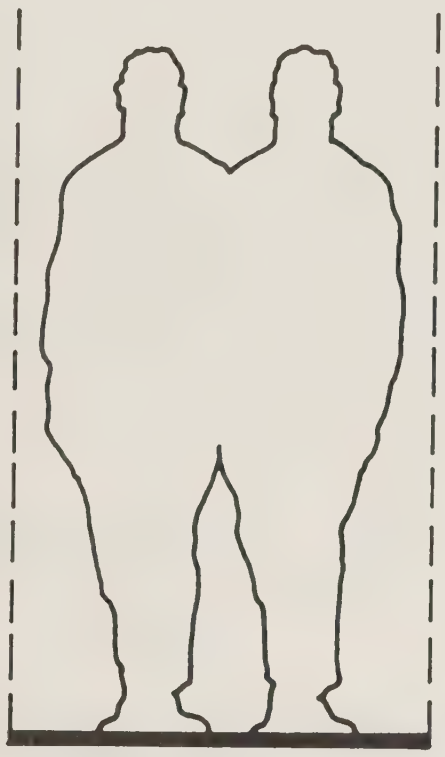


Activities:
Walking with assistance

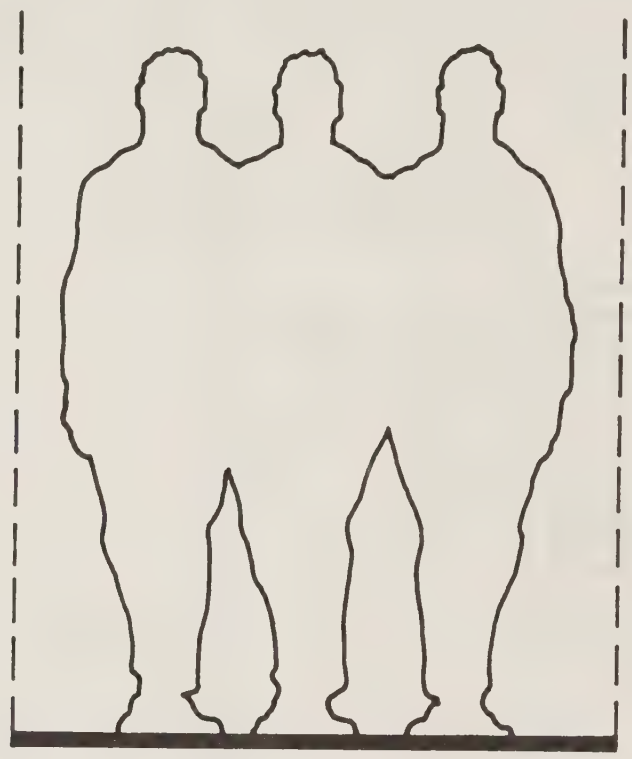
DHSS· **Ergonomic data bank:**
Component-user data sheet, not to scale

Person

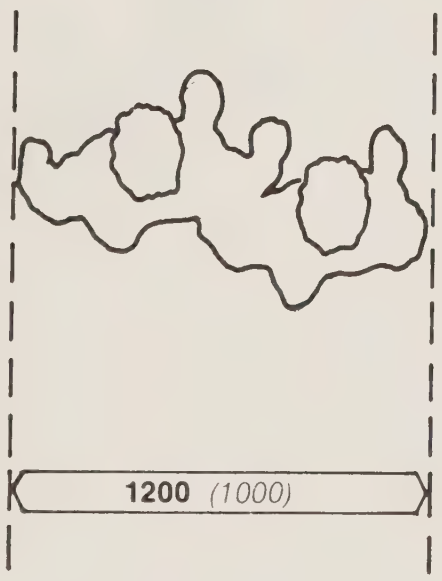
Users:
Partially capable with assistance



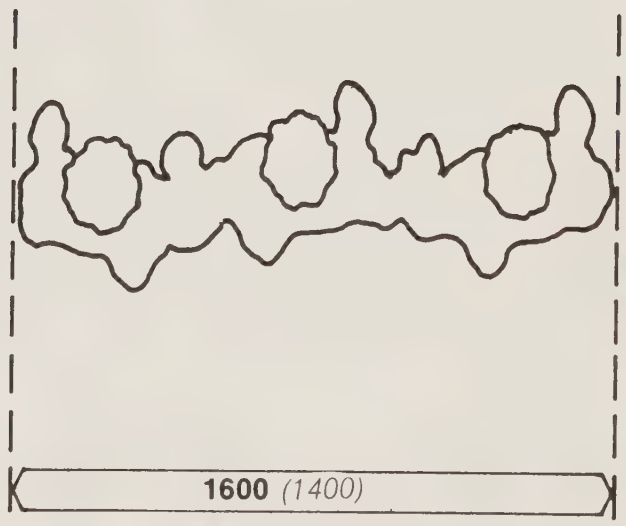
ELEVATION



PLAN



WALKING ASSISTED BY ONE PERSON



(1500) — where assisted patient is very debilitated

see notes 1 and 2

WALKING ASSISTED BY TWO PERSONS

Fig.1

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Dimensions — unbracketed dimensions are preferred minima for widths of lanes of pedestrian traffic assuming a total travel distance of more than 1500mm.
— bracketed dimensions are restricted minima applicable to movement through door openings or similar where the travel distance does not exceed 1500 (the bracketed dimensions should not be used for normal pedestrian traffic lane requirements).

2. Corridor widths
— the dimensions shown are lane dimensions and not minimum corridor widths. Where either walking with one or two assistants is the only criticial criterion in determining a corridor width, and where the travel distance exceeds 2500, it is recommended that an additional allowance of at least 100mm be provided to accommodate the normal oscillatory movements of persons walking.

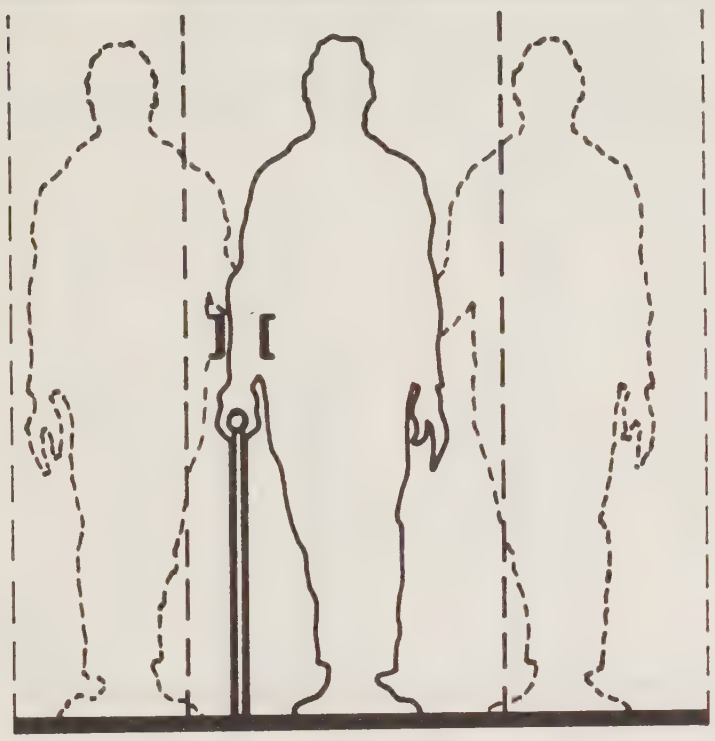
Activities:

Walking with the aid of elbow or shoulder crutches and one or two assistants

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

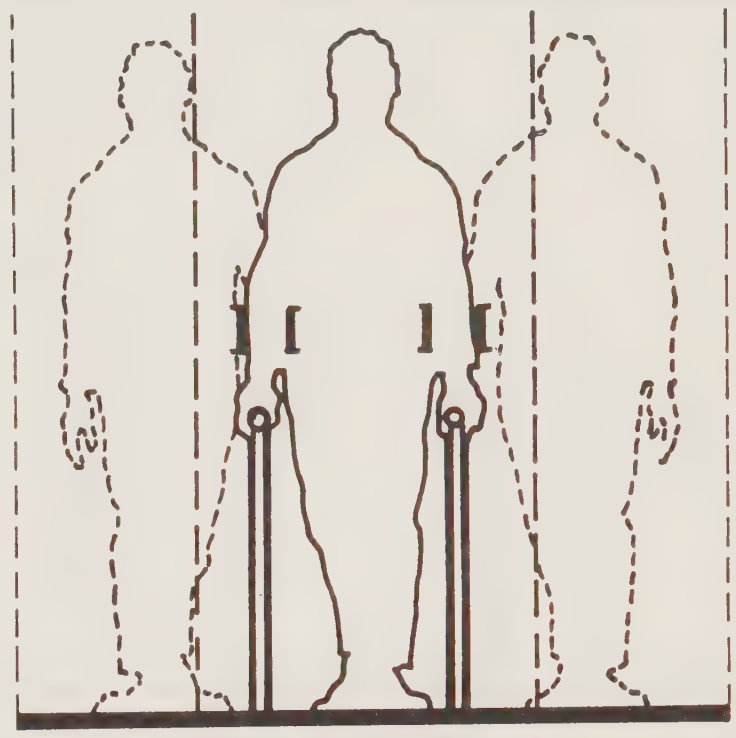
Person

Users:
Partially capable, independent or assisted.



850

one elbow crutch



900

two elbow crutches

1400 *(1350)*

one elbow crutch and one assitant (see note 1)

1400 *(1350)*

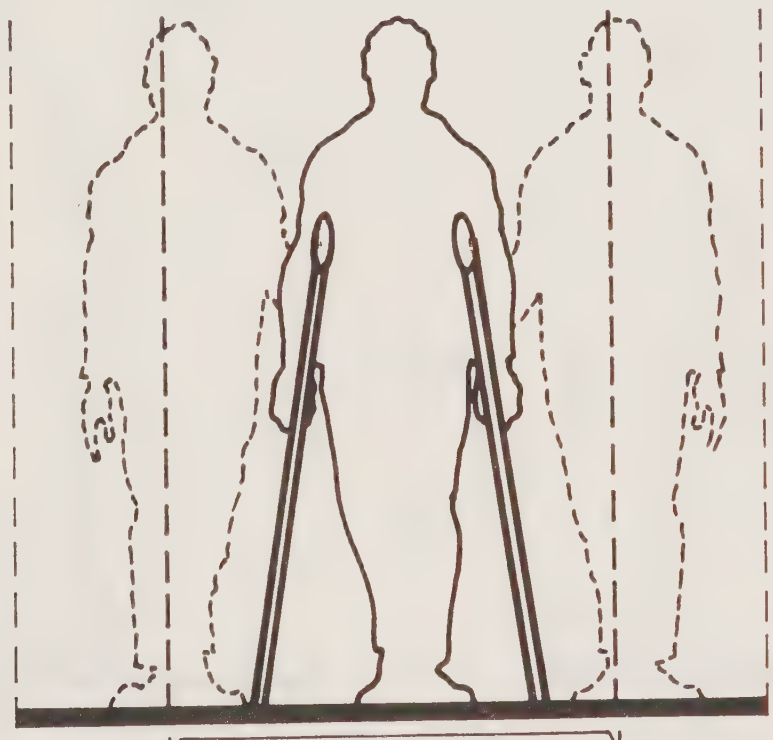
two elbow crutches and one assistant (see note 1)

1850 *(1750)*

one elbow crutch and two assistants (see note 1)

1900 *(1800)*

two elbow crutches and two assistants (see note 1)



1200 *(1000)*

two shoulder crutches

two shoulder crutches and one assistant (see note 1)

1600 *(1500)*

two shoulder crutches and two assistants (see note 1)

2000 *(1800)*

Fig.2

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Space for assisting is slightly restricted and therefore not recommended in heavily used areas.
2. Patients can be assisted from behind and/or in front when passing through an opening.

Notes

Bracketed dimensions (assisted users).

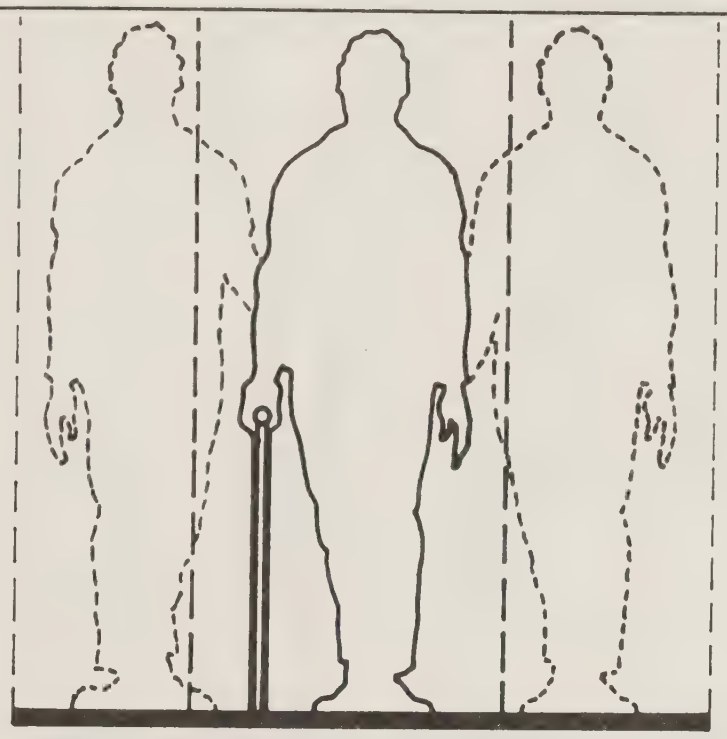
Activities:
Walking with the aid of one or two sticks and one or two assistants.
Walking with the aid of one or two tripods and one or two assistants

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

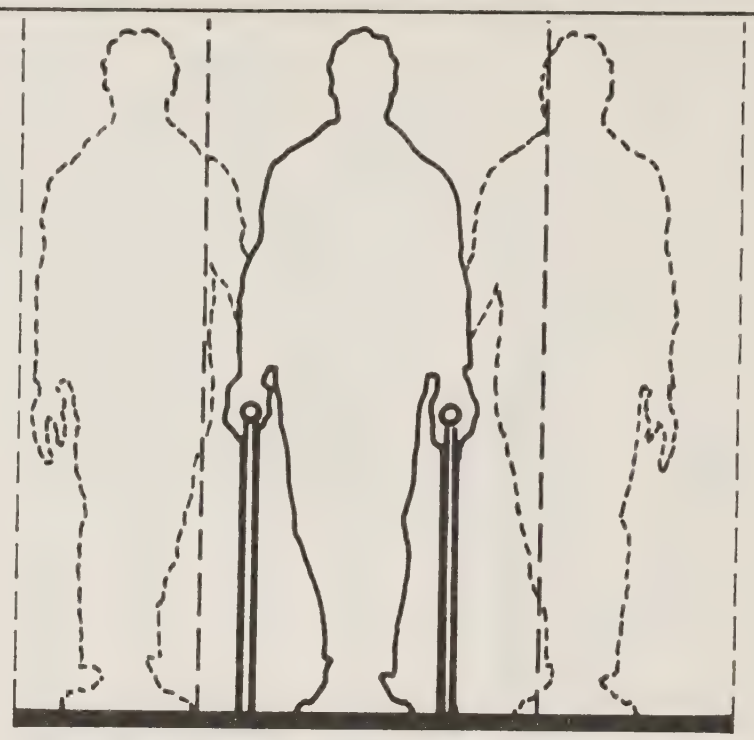
Person

With walking sticks or tripods

Users:
Partially capable, independent or assisted



800 *(750)*
one stick (see note 3)



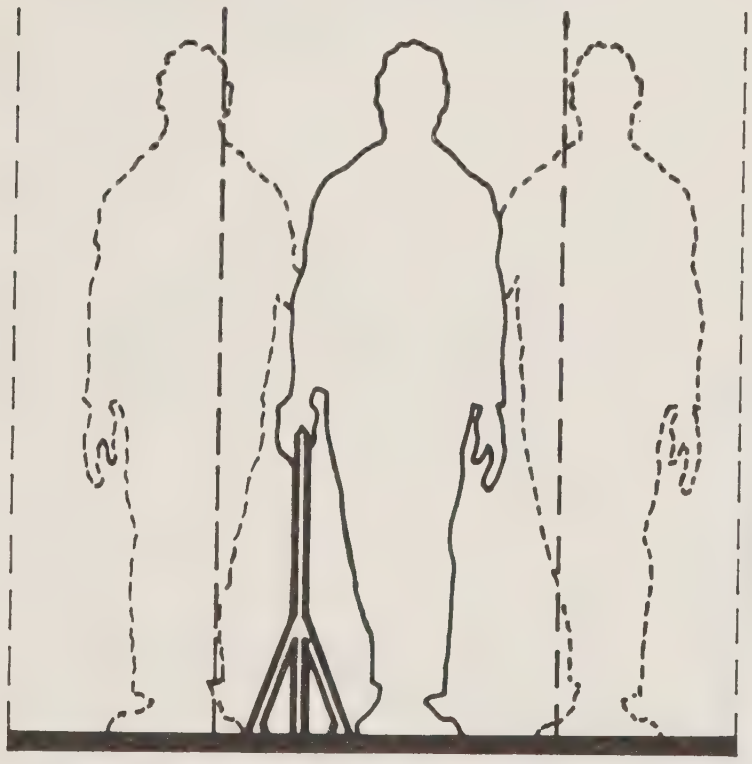
900 *(800)*
two sticks (see note 3)

1350 *(1300)*
one stick and one assistant (see note 1)

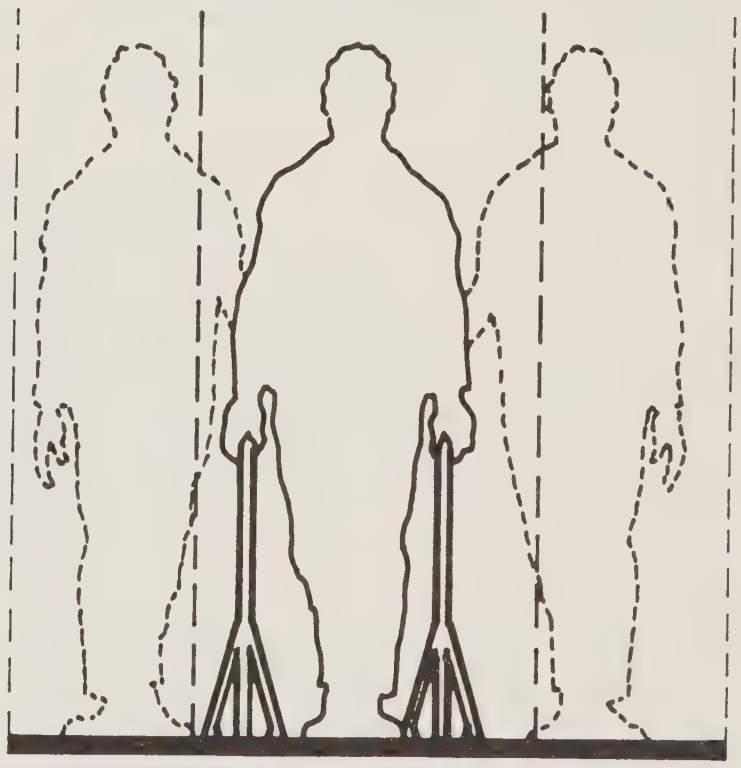
1400 *(1350)*
two sticks and one assistant (see note 1)

1850 *(1750)*
one stick and two assistants (see note 1)

1900 *(1800)*
two sticks and two assistants (see note 1)



900 *(850)*
one tripod (see note 3)



950
two tripods

1400 *(1350)*
one tripod and one assistant (see note 1)

1450 *(1400)*
two tripods and one assistant (see note 1)

1900 *(1850)*
one tripod and two assistants (see note 1)

1950 *(1850)*
two tripods and two assistants (see note 1)

Fig.3

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

Bracketed dimensions (assisted users).

1. Space for assisting is slightly restricted and therefore not recommended in heavily used areas.

2. Patients can be assisted from behind and/or in front when passing through an opening.

3. Independent circulation - bracketed dimension is satisfactory for short travel distances only.

Activities
Walking and passing through doors

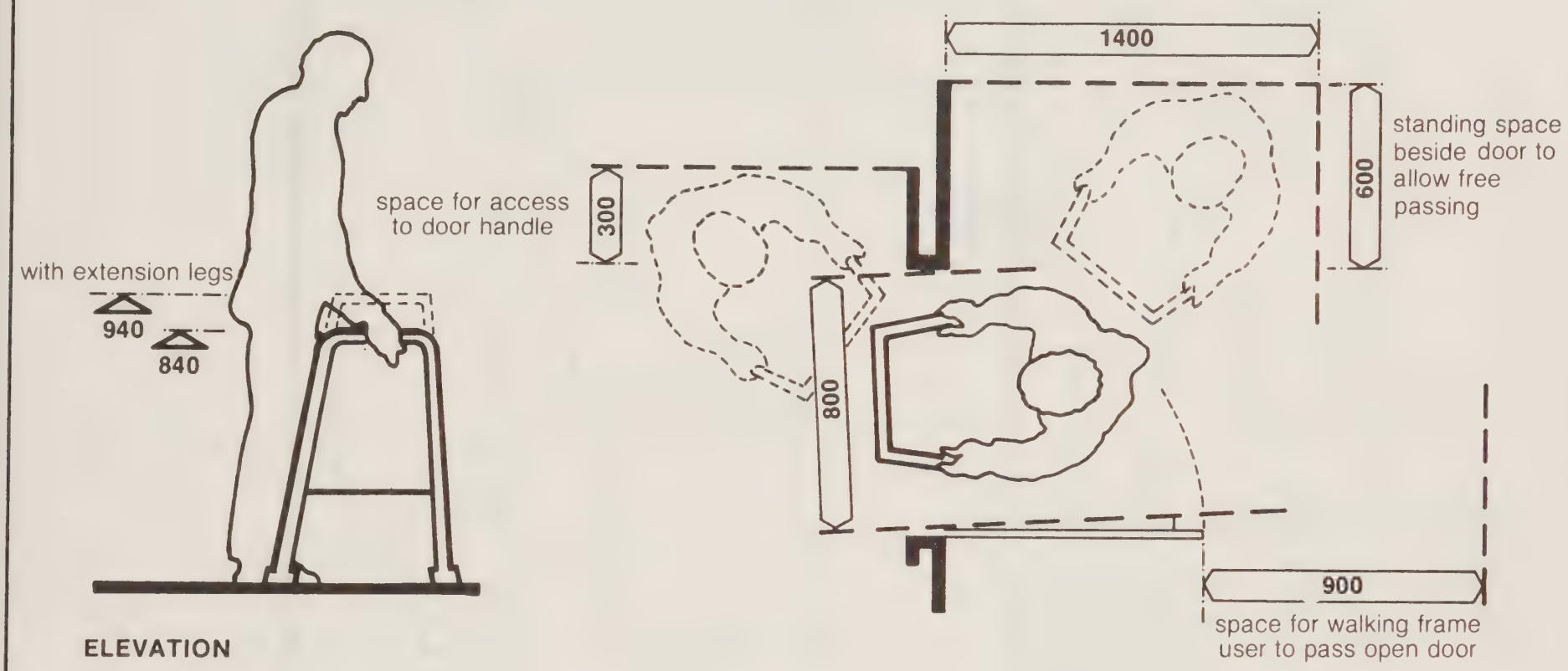
DHSS **Ergonomic data bank**
Component-user data sheet not to scale

Person
with walking frame
(lightweight)

Users
Partially capable (including the elderly)
independent or assisted

NORMAL CIRCULATION

SPACE FOR INDEPENDENT USER TO
PASS THROUGH SINGLE LEAF DOOR

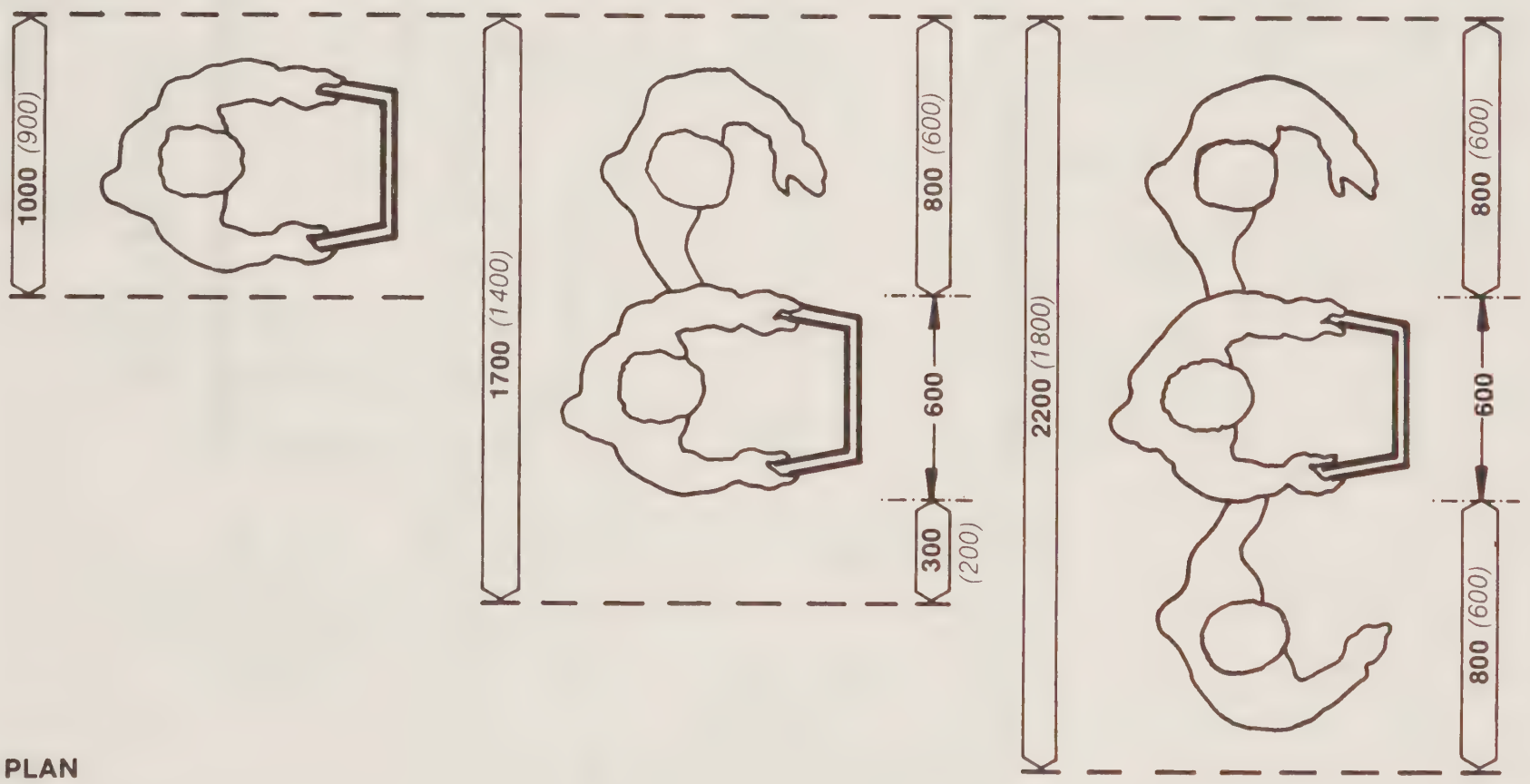


ELEVATION

INDEPENDENT WALKING

WALKING WITH ONE ASSISTANT

WALKING WITH TWO ASSISTANTS



PLAN

Fig.4

1350 *(1300)*

Preferred minimum

Restricted minimum (not recommended for general use: see explanatory notes)

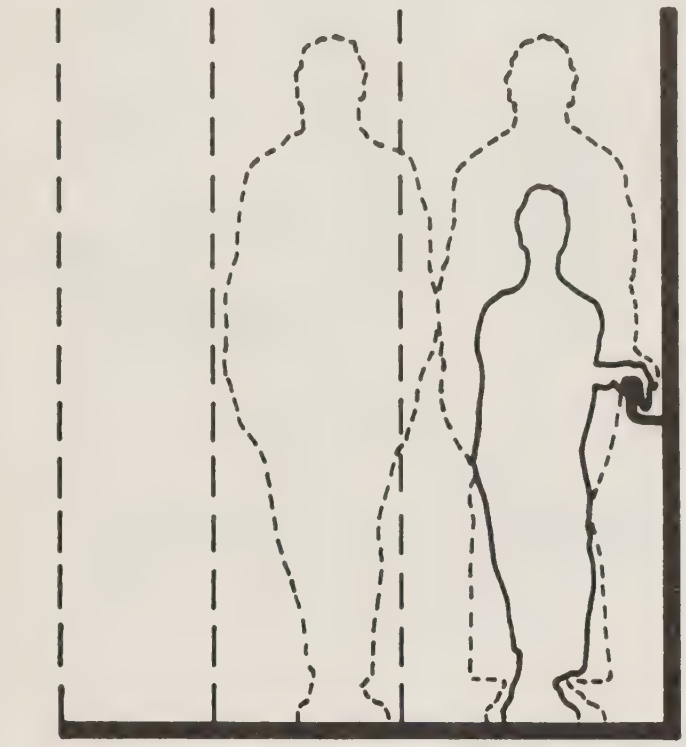
Activities:
Walking using wall mounted handrail.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Handrail

Wall mounted

Users:
Partially capable — with assistance



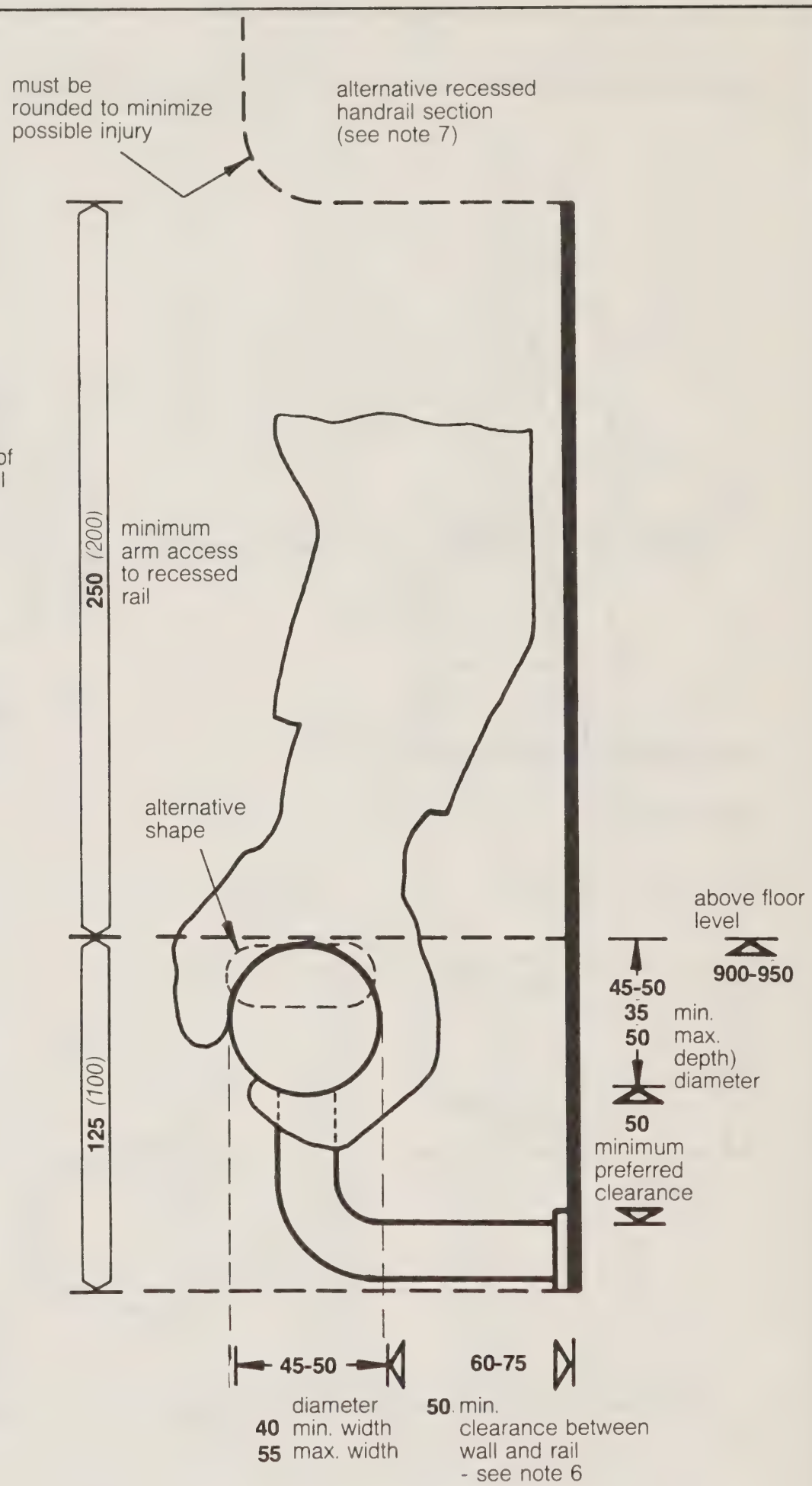


Fig.5

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Handrails must be rigid and securely fixed, and should preferably be continuous, ie not broken at landings or in lobbies. In areas of high usage they should be provided on both sides of corridors used by the old, disabled, or debilitated.
2. Handrails sections must be easy to grip. Circular sections are generally satisfactory. It should be noted that sections that are too small are uncomfortable and provide an unsatisfactory grip. Sections that are too large are difficult for people with weak or arthritic hands and therefore should be formed or grooved to allow the hand to grip the rail securely.
3. See also STAIRCASE and RAMP data sheets.
4. Adjacent floor surfaces should be slip-resistant, whether wet or dry, and changes in level should be clearly identifiable by contrasts in colour texture and by lighting.
5. Obstructions and projections from adjacent walls should be avoided. If this is not possible they should be clearly discernible.
6. The restricted clearance space of 50mm is satisfactory for normal users but is uncomfortably tight for arthritic hands especially when gloves are worn. The larger dimension is therefore preferred and should be seen as essential in external areas and generally where outdoor clothing is worn.
7. Recessed handrail sections are not satisfactory for use by the more severly disabled who prefer to 'lean' on the rail, as a comfortable position cannot be achieved.

Activities:
Parking bays - getting into and out of car.
(see also Car Parking Bay Fig.7 & Fig.8 (Notes)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Car Parking Bays

Users:
Wheelchair users assisted and independent.

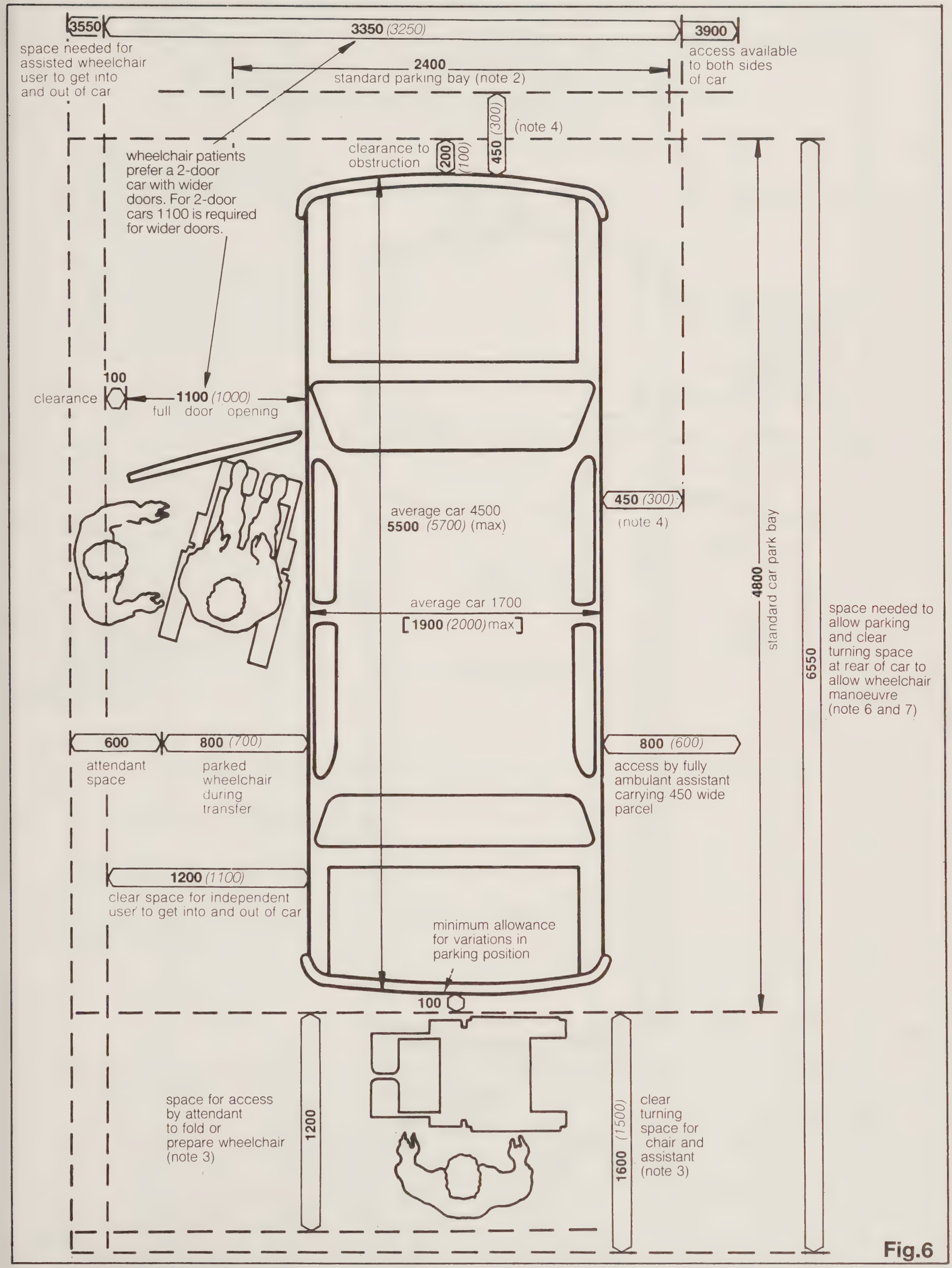


Fig.6

Activities:
Parking bays - getting into and out of car
(see also Car Parking Bays Fig.8 (Notes)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Car Parking Bays

Users:
(Ambulant disabled)

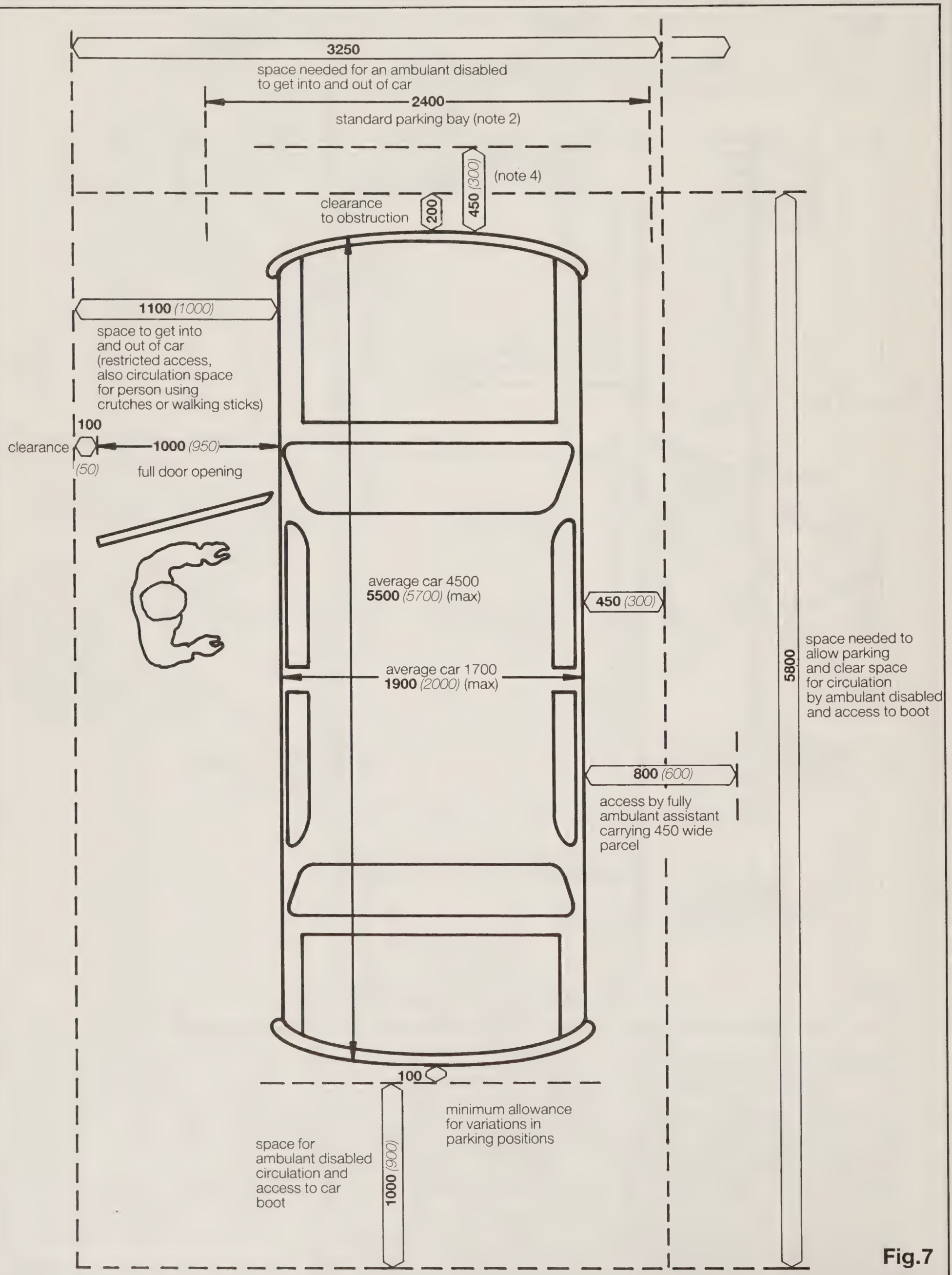


Fig.7

Car Parking Bays

Users:
Ambulant disabled wheelchair users assisted and independent.

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

1a. Parking bays reserved for the sole use of disabled users should be positioned as close as possible to the building entrance, and should whenever possible be under cover, together with a covered access if practicable. (BS 5810:1979).

1b. Both wheelchair passengers and independent chairbound drivers usually use the door for the front passenger. Chairbound drivers usually transfer to the passenger seat and slide across to the driving seat pulling the wheelchair in behind them on to the floor in front of the rear seat. Two-door vehicles with wide door openings are usually involved.

1c. Although for reasons of economy, small cars are commonly associated with disabled usuage, it should be recognised that standard or large cars are more convenient for the disabled to use. It is recommended that parking spaces generally should be adequate for standard car usage, which will also allow at least restricted access to large cars.

2. Standard parking bay width is an average for multi-bay situations. End bays against a wall or other obstructions should be increased by 200 *(100)*. Similarly 300-800 *(200)* depending on level of convenience required should be added to end bay for disabled usage.

3. Access to the boot of large cars may be obtained from the side of the car if parked in a standard bay. This is possible but is generally less convenient in view of the need to lift the wheelchair over a higher rim, and the reach problems presented, especially for small attendants.

4. 300 allows restricted circulation space for abled bodied person.

5. Add 200-300 to width for large (American type) car.

6. Add 1000 length for large (American type) car.

7. Average space length (in-line parking) includes allowance for manoeuvring car into and out of parking space. End bay with straight access may be reduced to 6000, however an end bay against a wall or other obstruction should be increased to 8000 to facilitate safe manoeuvring.

Fig.8

Activities:
Walking up and down stairs

DHSS **Ergonomic Data Bank**
Component-User data sheet, not to scale

Stepped Approach

Users:
Ambulant disabled with and without assistance

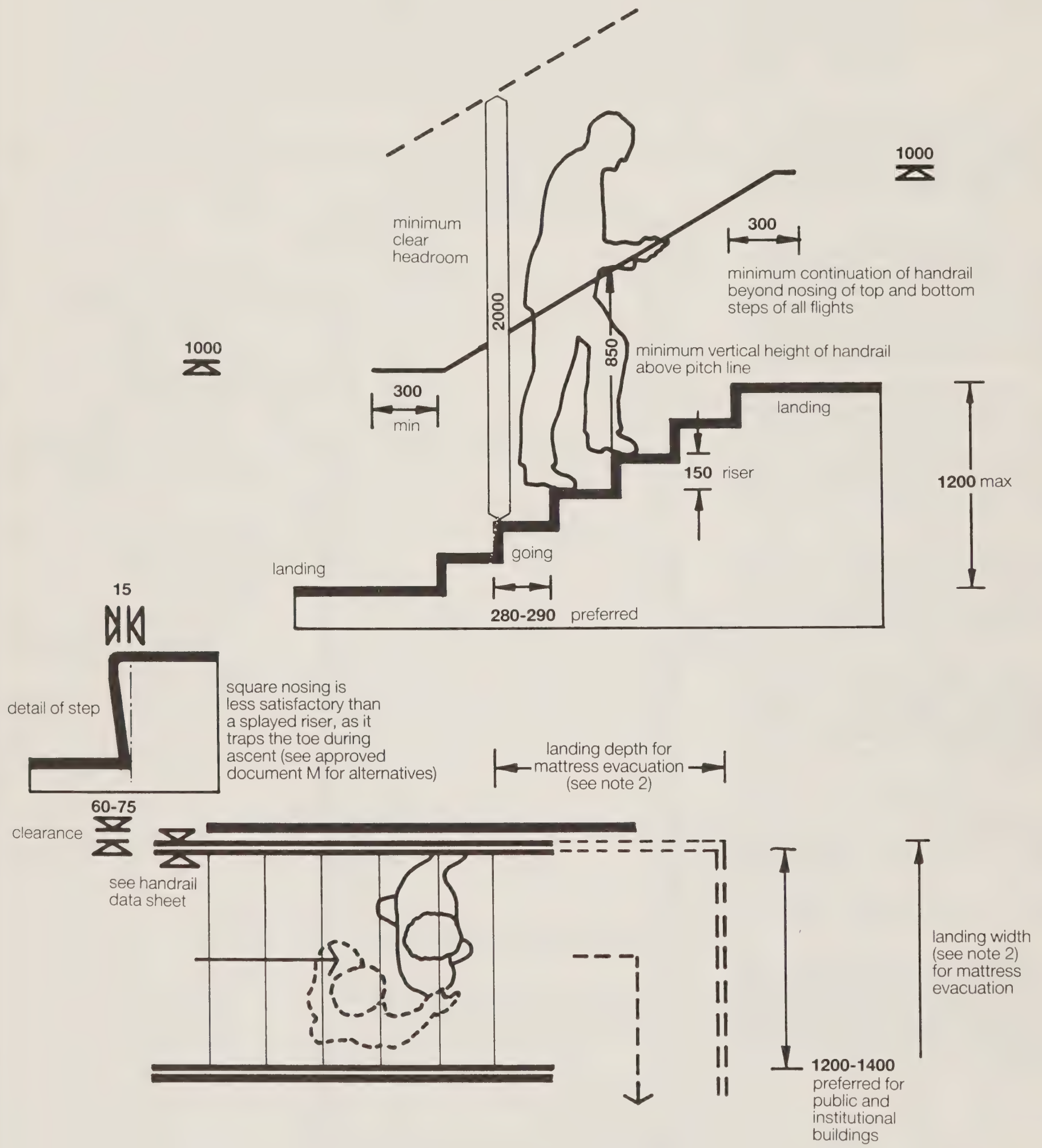


Fig.9

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. For detailed application the Building Regulations must be complied with and approved document M should be followed.
2. For mattress evacuation, landing depth and width (see HTM 81 para 18.17).

Activities:
Walking up and down stairs

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Internal Stairway

Users:
ambulant disabled with and without assistance.

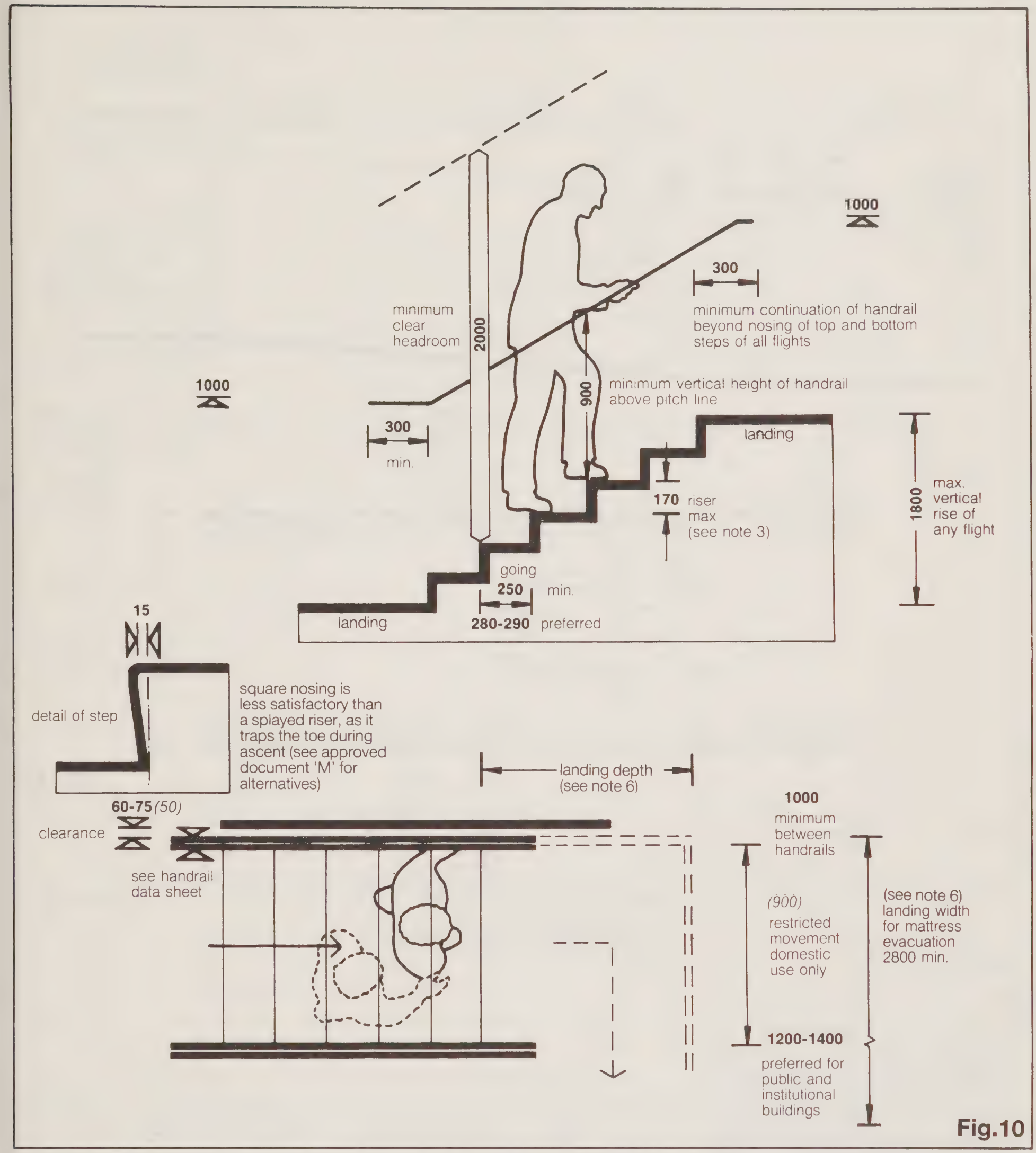


Fig.10

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. The most efficient stair in terms of energy expenditure, also the safest in that stumbling is minimised, is provided by an angle/pitch of 30° This is afforded by a stair with risers of 170 and treads of 290.

2. Open-risers and winders of splayed steps are hazardous for disabled persons.

3. It is also essential that all risers should be uniform in dimension.

4. Staircase shown is for a 'minimum' situation where the ambulant disabled are the critical criteria and the traffic flow is low; where greater traffic flows and mattress evacuation have to be catered for, a wider staircase may be required.

5. See also handrail data sheet.

6. See Building Regulations approved documents K.M. Minimum clear landing depth must in all cases be not less than minimum clear stair width. Landing may require to be deeper and wider e.g. to facilitate turning for mattress evacuation (see HTM 81 para 18.17).

7. White edging on steps will make them more visible to the partially sighted.

Activities:
Ramped access for independent and/or assisted wheelchair use, also ambulant disabled using walking aids or assisted.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Ramp

Medium/long

Users:
Wheelchair disabled and ambulant disabled

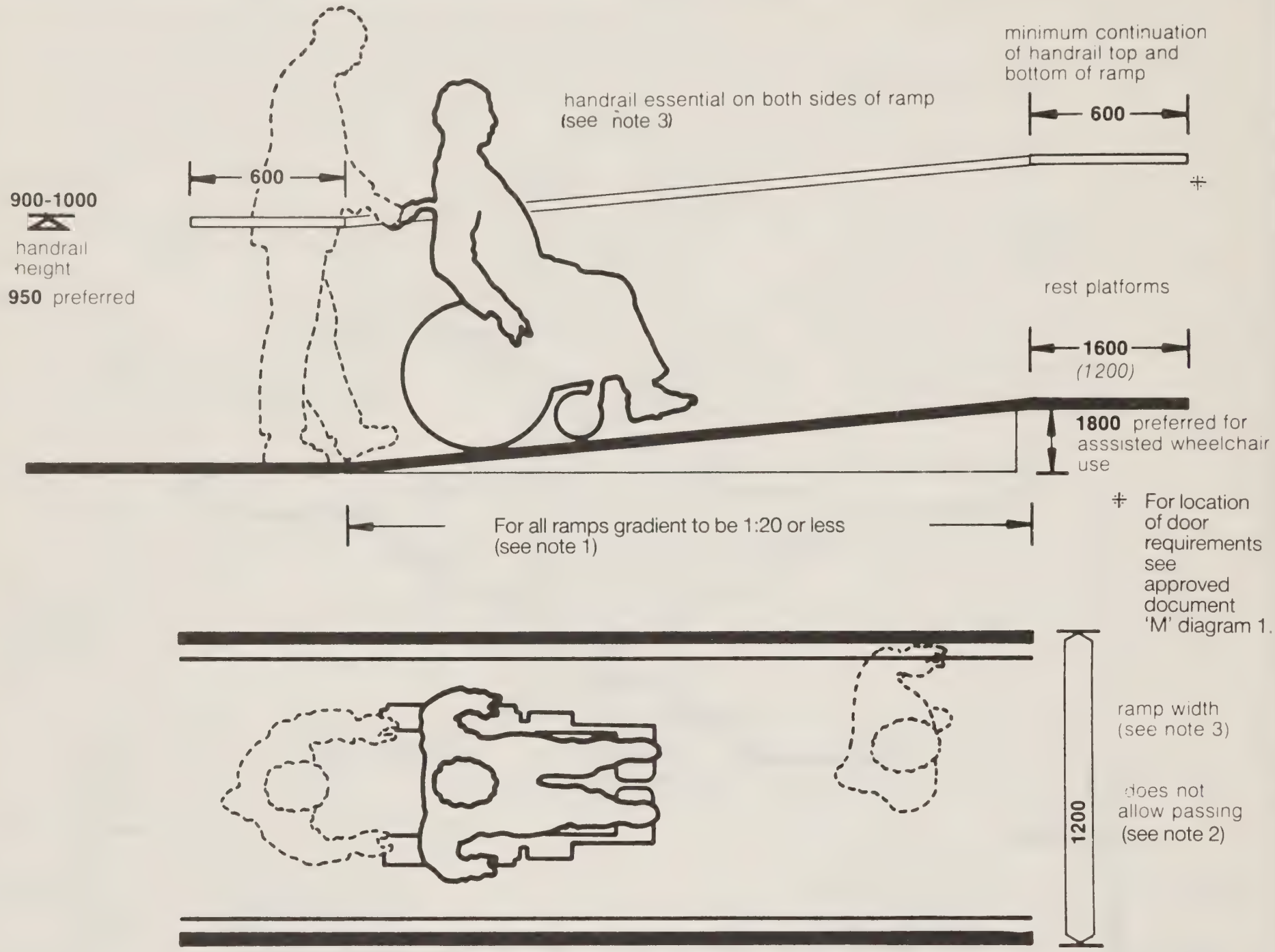


Fig.11

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Maximum ramp gradients not to exceed 1:20

2. For width of ramp for passing see relevant data sheets for straight movement, eg two wheelchairs (independent) passing 1800, wheelchairs (independent) passing ambulant person, 1500. Restricted movement dimensions should however not be used owing to increased difficulty in manoeuvring on ramps.

3. Handrail design must not obstruct wheelchair manoeuvring, especially by independent wheelchair users. Where this occurs ramp width must be taken as clear manoeuvring space between handrails. Clear height of space below handrail must be 850 to facilitate free and safe arm movements.

4. For ramps exceeding 10,000mm lengths, will require landing rest platforms. See approved document 'M' diagram 1.

5. Ramps down, serving only as a means of escape in the event of fire or emergency may have a gradient of 1:12.

6. Ramps must have raised curbs at least 100mm high on any open side.

7. Guardings and handrails to be provided in accordance with approved document 'K' 1/2, appendix 'A'.

Activities:
Moving from pavement to roadway or vice versa by wheelchair users and mobile equipment.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Dropped Kerb

Users:
Assisted and independent wheelchair users.

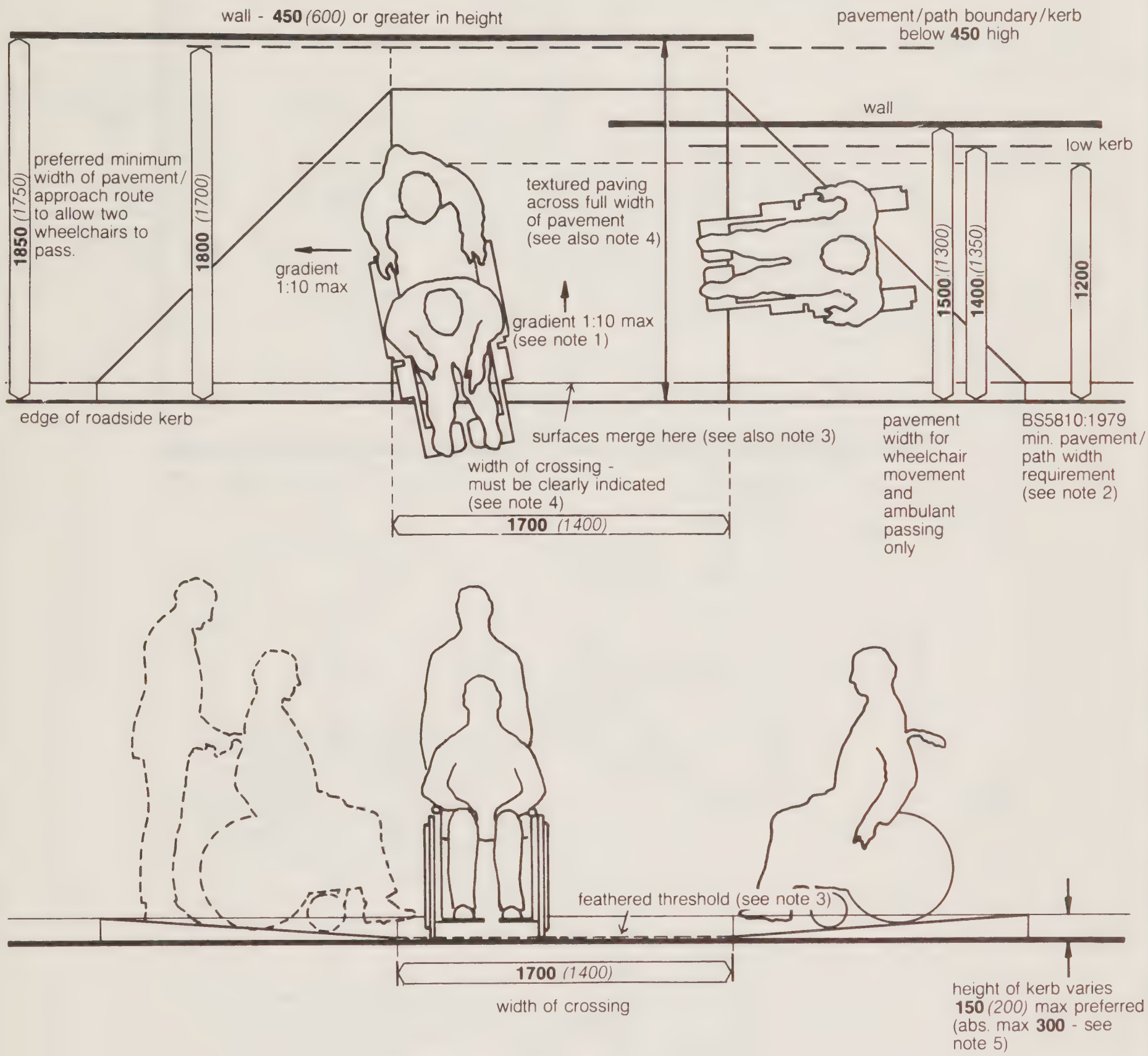


Fig.12

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Many dropped kerbs as currently constructed do not comply with the requirements of BS5810:1979 in that the gradient of the ramps often significantly exceeds the stipulated maximum of 1:10 (Gradients of 1:4 are common - ie a rise of 150 in a horizontal length of 600). User trials indicate that gradients steeper than 1:6 can be dangerous especially for independent users e.g. amputees as the wheelchair can tip over backwards during ascent. It is particularly important that the limit of 1:10 should not be exceeded in health buildings.

2. Approved document 'M'. Access for the disabled people to buildings, requires that all public approach routes to buildings be not less than 1200 wide. This will provide for only very restricted wheelchair and ambulant person passing space. Two wheelchairs cannot pass on a path of this width and is therefore generally unsatisfactory for health buildings where use by persons in wheelchairs (or movement of patient trolleys) may be frequent.

3. Road level and roadside kerb are best blended at intersections, but where a slight raised threshold is unavoidable, this must be clearly defined with colour contrast and good illumination, be feathered in detail and not exceed 25mm in height.

4. To assist location of the crossing by blind and partially sighted users the pavement surface must be textured. This should extend the full width of the pavement/path andbe associated with the width of the crossing, the width of which must also be clearly indicated for sighted users.

5. Roadside kerb heights over 300 will necessitate ramp lengths in excess of 3 metres, where gradient may be reduced to 1:12 (see Ramps data sheet).

Activities:
Access to and use of lift controls by persons in a wheelchair

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Lift Controls

Users:
Independent wheelchair users and ambulant disabled.

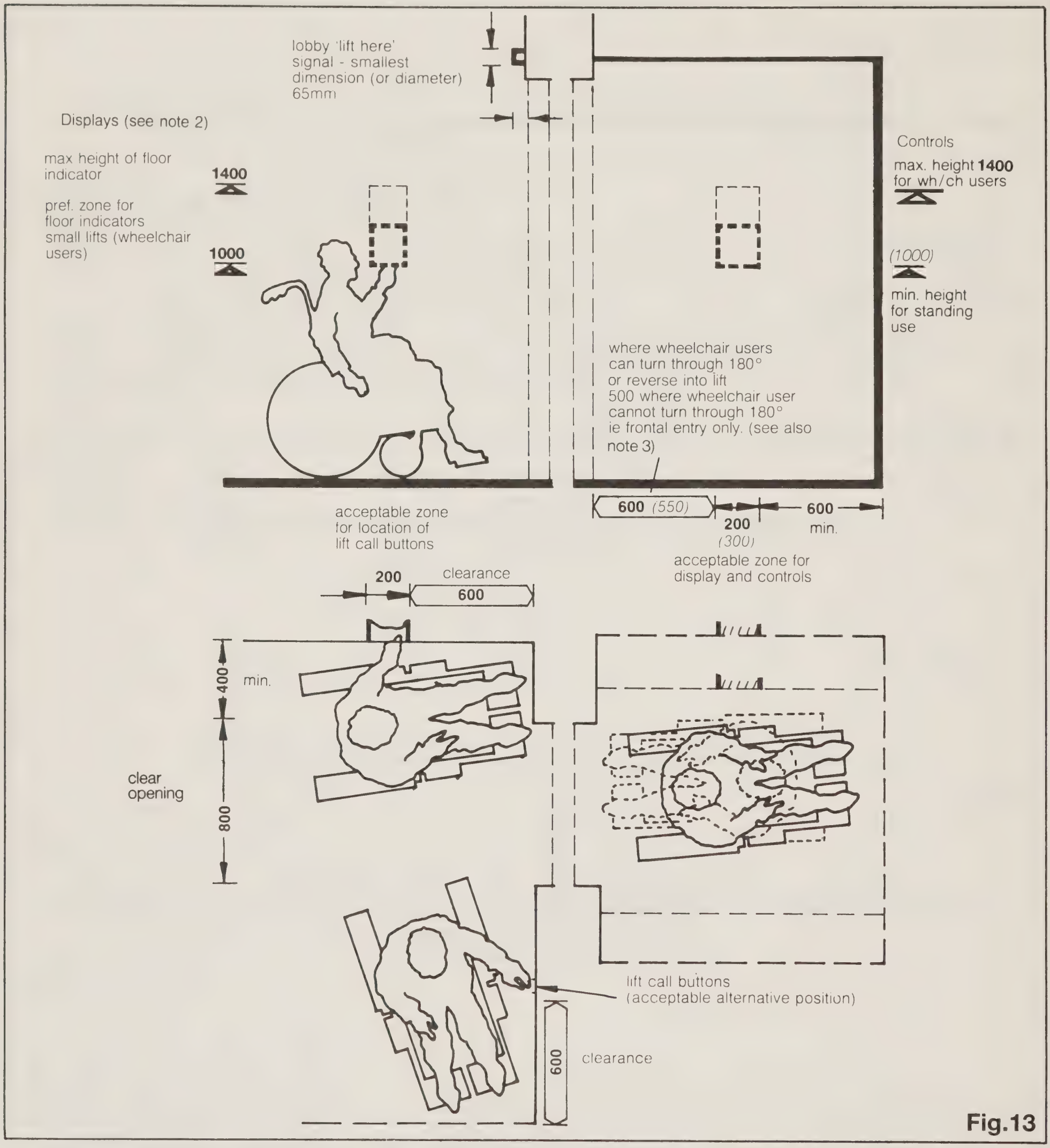


Fig.13

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. To reduce search for the controls upon entry, control panels should be located nearer the door wall rather than the back wall of the lift. Also floor indicators are only readily visible to wheelchair users in small lifts if displayed on side walls (ie not above the door on the door wall as is current practice as these would be behind the wheelchair user adopting frontal entry). A side wall location is acceptable for frontal or reverse entry. In larger lifts where turning space is available, floor indicators can be located above the door or on the door wall, as is current practice.

2. Height location of displays in small lifts - the seated wheelchair users are the more critical - height must therefore be satisfactory for their needs. To make this height, which is very low, more acceptable to standing users the display panel should be slightly angled for easier reading.

3. Position of controls inside lift - dimension from front of lift - 600 where wheelchair users can turn through 180° or reverse into lift (550) acceptable where door recess will accommodate wheelchair footrest. 500 where wheelchair user cannot turn through 180° ie frontal entry only.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Lift

wheelchair/passenger
Type 630 kg *(1100 × 1400)*

Users:
suitable for independent wh/ch users in standard DHSS wh/ch, if necessary accompanied by an assistant.

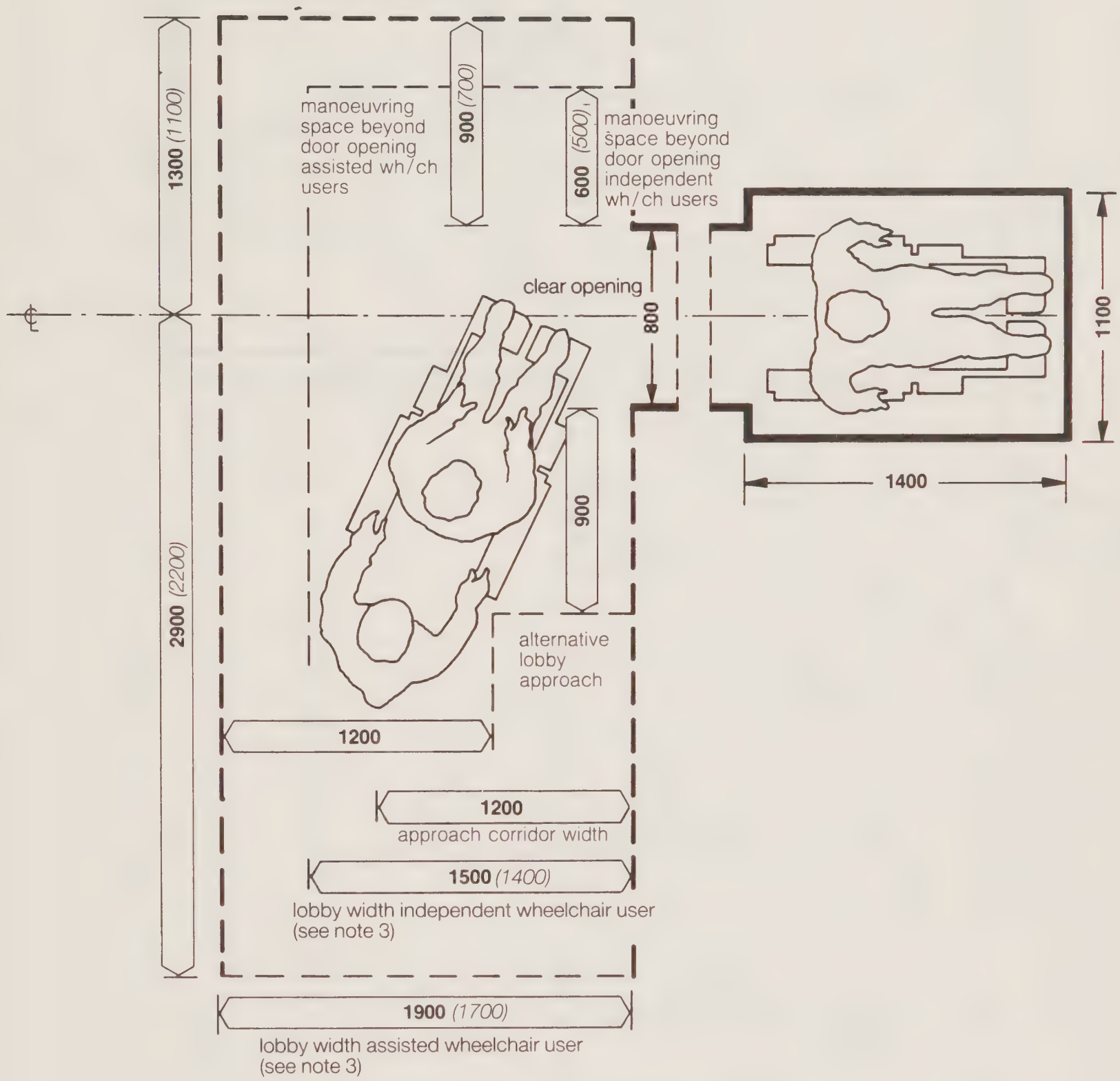


Fig.14

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Wheelchair turning is not possible in any of these lifts. Controls and displays must be accessible and visible to independant wheelchair users who enter forward or reverse into the lift

2. (Displays on access jambs cannot be seen by wheelchair users who enter frontally. Only a side wall display is therefore satisfactory).

3. The dimensions shown are for wheelchair access space only. The overall landing depth and area will need to be larger to comply with BS 5655 part 5 and approved documents 'M' 2/3/4.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Lift wheelchair/passenger

Type 1000 kg *(1600 × 1400)*

Users:
suitable for independent and assisted wh/ch users - independent turning through 180° (depending on door recess of 100 or more and standard wh/ch dimensions)

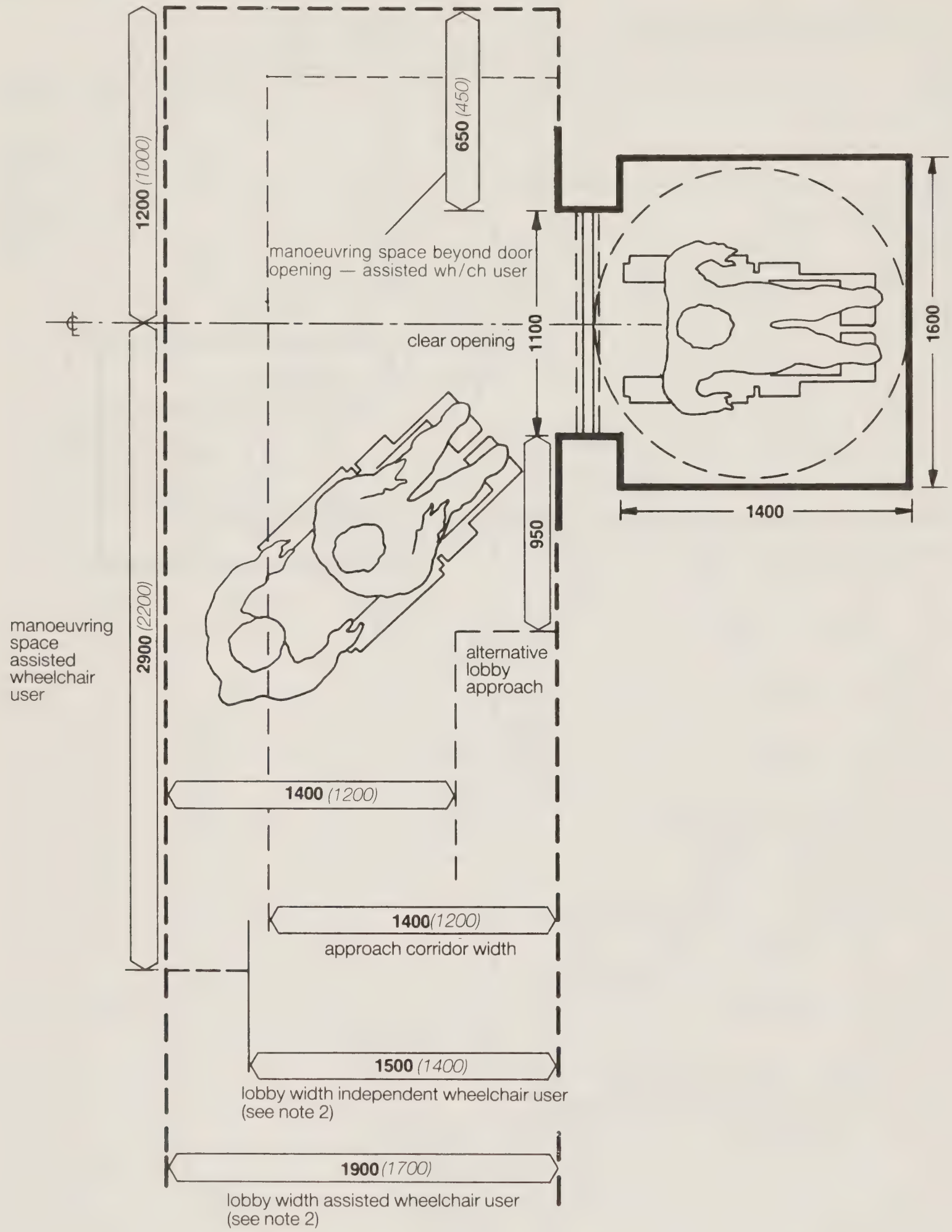


Fig.15

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Wheelchair turning is just possible in the lift, although some independent users may experience difficulty. This lift *(1600 × 1400, 1000kg)* should therefore have controls and displays that are immediately accessible and visible to users who enter either forward or in reverse.

2. The dimensions shown are for wheelchair access space only. The overall landing depth and area will need to be larger to comply with BS 5655 part 5 and approved documents 'M' 2/3/4.

Activities:
Forward reach, sideways reach, upwards reach

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

DHSS Standard 8L

Users
Wheelchair users

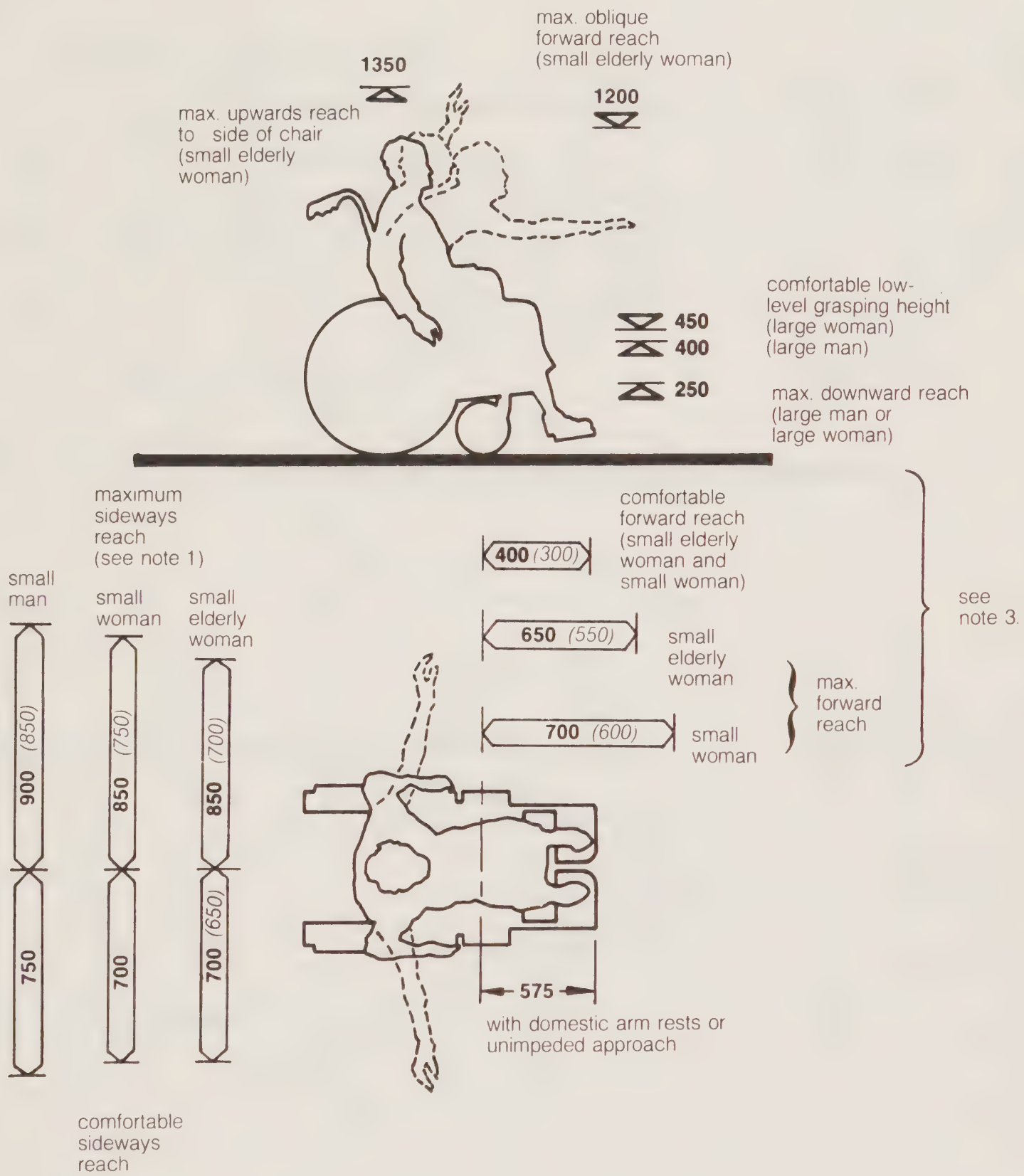


Fig.16

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Restricted sideways reach dimensions also apply to wheelchair users whose balance is impaired and where trunk movement is consequently restrained.

2. Restricted forward reach dimensions apply where approach is impeded by wheelchair arm rests.

3. All forward reach dimensions assume that user is not impeded in approach by either chair arm rests, worktop depth, or other obstruction.

4. The recommended lowest shelf height for access to small items is 300.

5. See also separate data sheet, Wheelchair: dimensions and user eye levels.

Activities:
Wheelchair dimensions, eye levels.
(see also Wheelchair Reach Dimensions)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

DHSS Standard 8L

Users
Wheelchair users

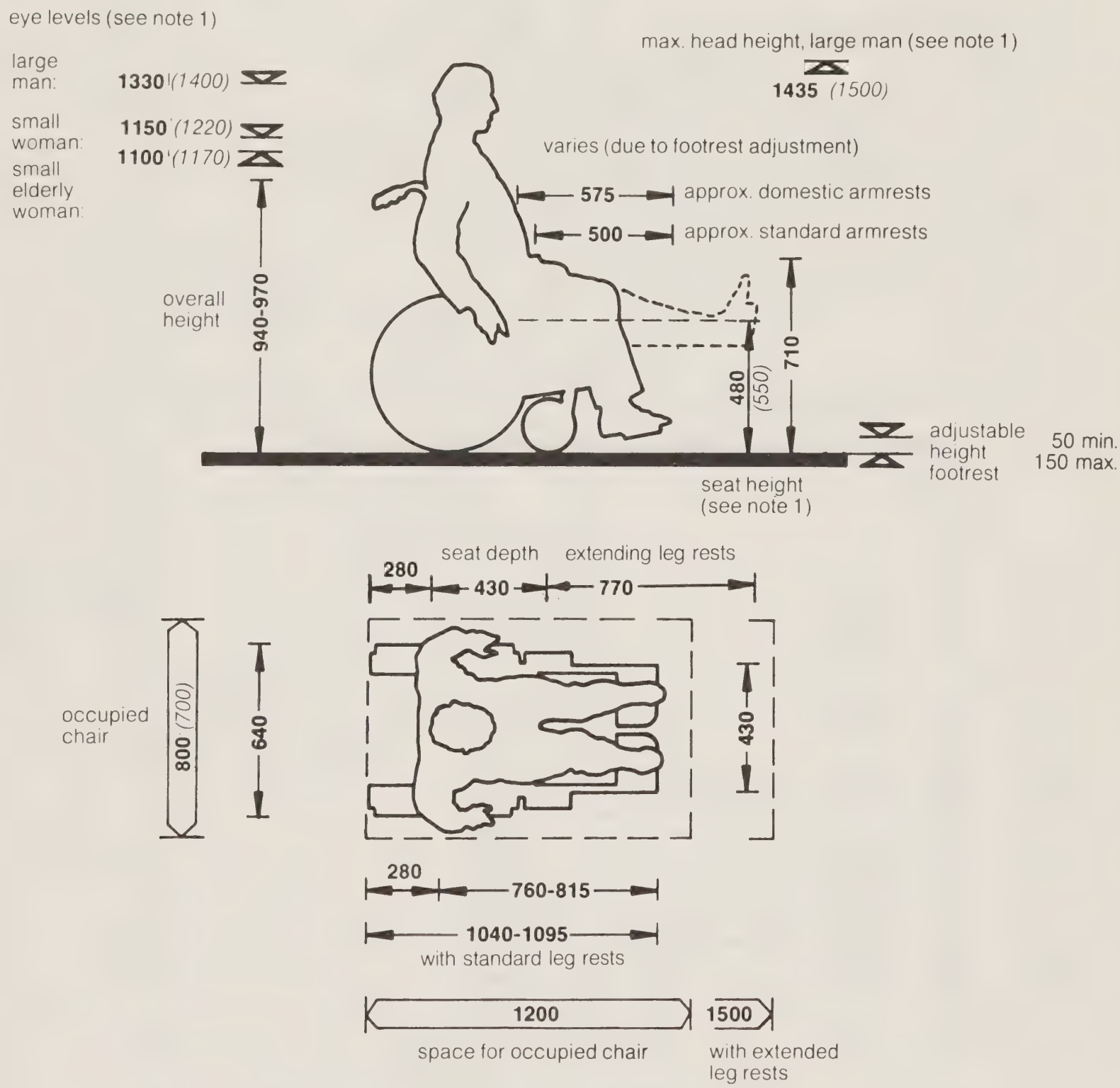


Fig.17

1350 *(1300)*

Preferred minimum — *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes

1. A cushion is used by most wheelchair users, and is essential for those with sensory impairment. A deep cushion is assumed to be 100mm increasing the effective seat height by 70mm maximum when compressed by a sitting person - Figures given in brackets( ).

2. For discussion of wheelchair characteristics, variations, modifications and general user preferences, please see Goldsmith 'Designing for the Disabled' 3rd edition, (RIBA Publications) 1976, pages 134 to 140.

3. A foot rest is required for legs unable to bend.

Activities:
Straight movement of wheelchair

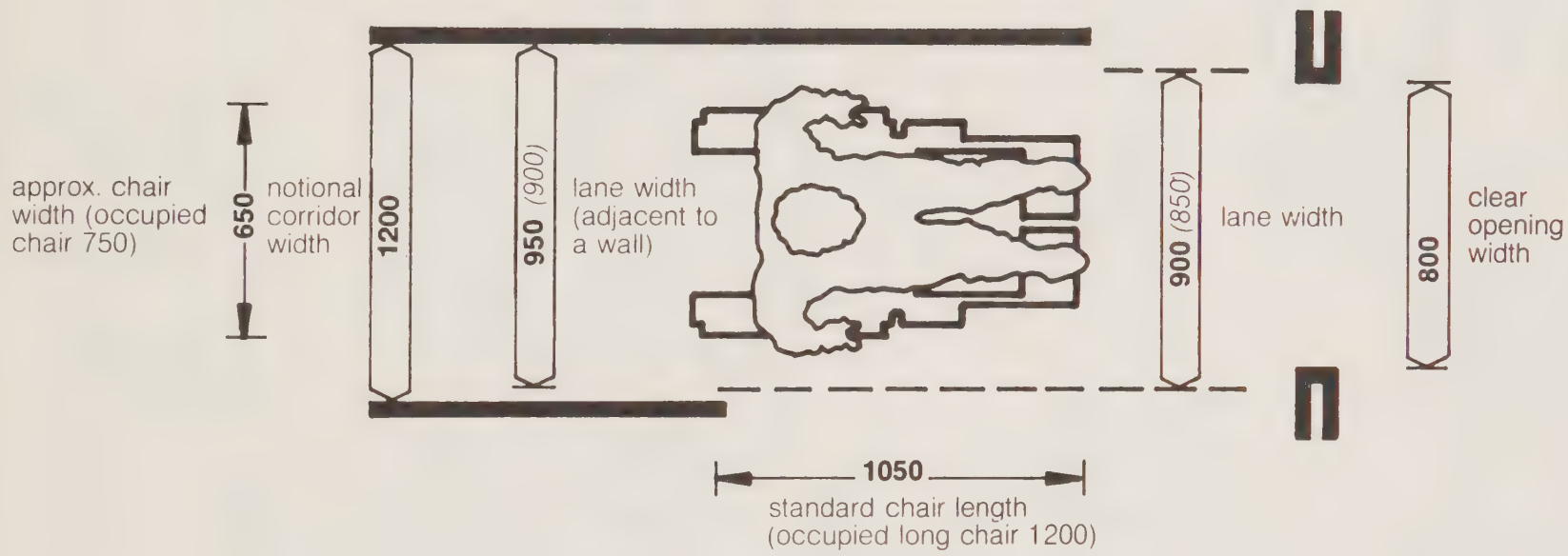
DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)
see note 1

Users:
Assisted and independent users

INDEPENDENT WHEELCHAIR USERS



ASSISTED WHEELCHAIR USERS

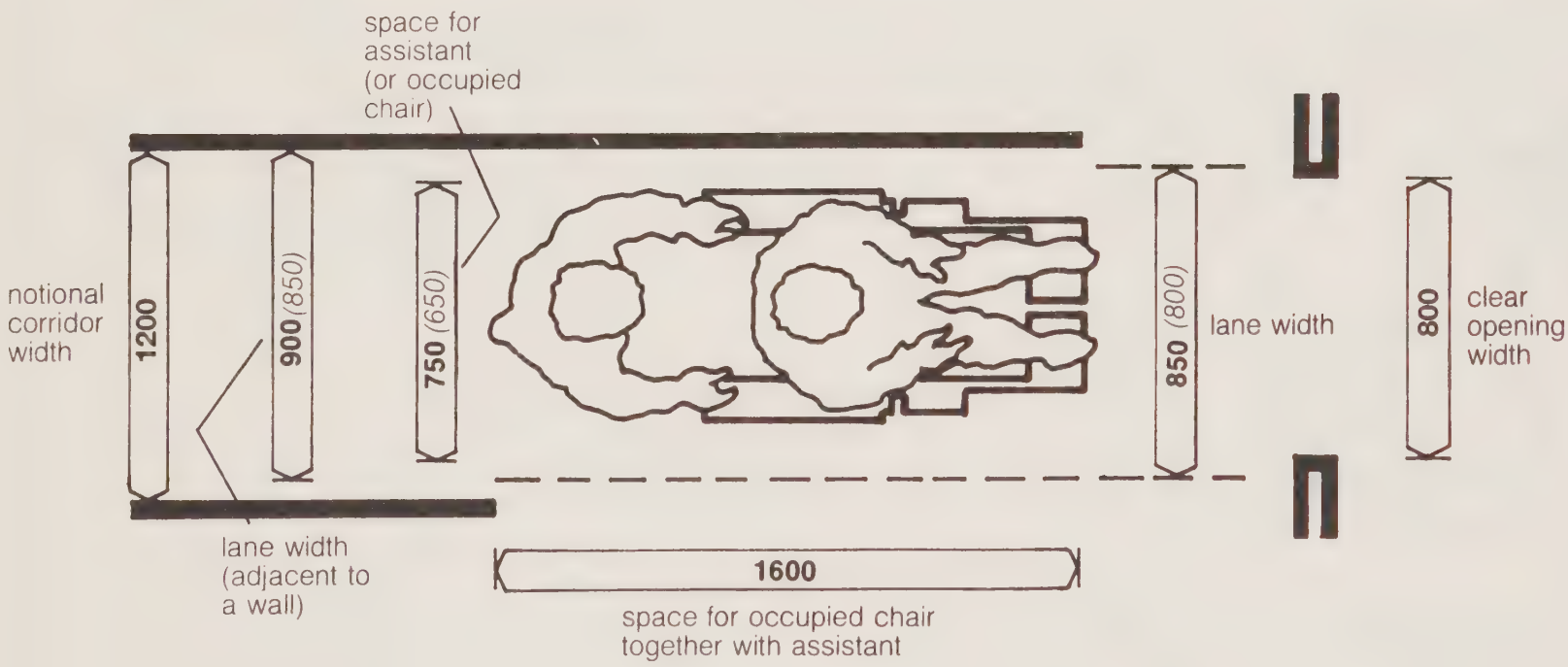


Fig.18

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Component envelope shown will also accept most types of wheelchair However, wheelchairs with elevated legrests, extended footrests, headrests, reclining backs etc. may result in larger components and consequent space requirements.

Activities:
Movement of wheelchairs - turning through 90°.& 180°

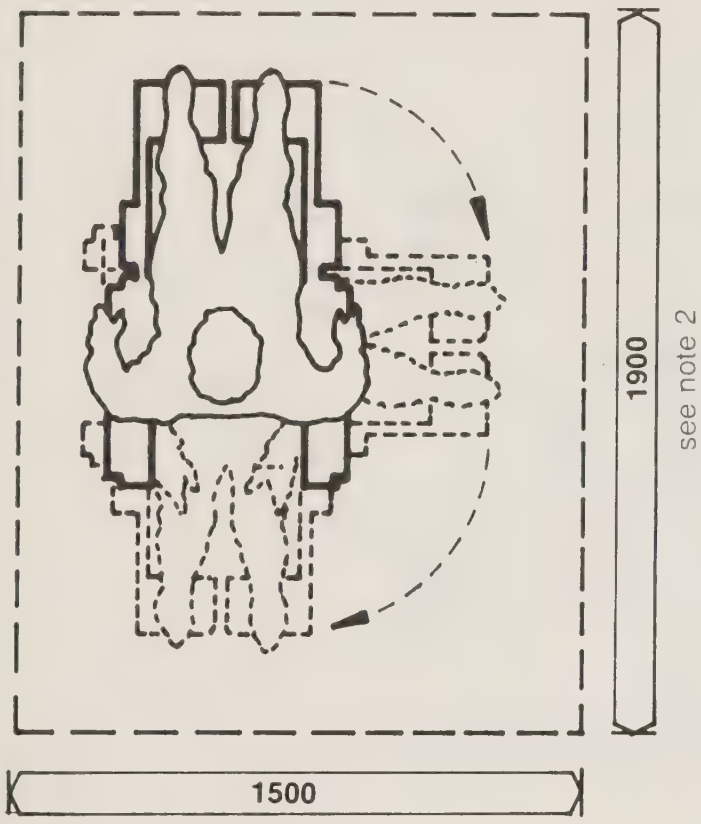
DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

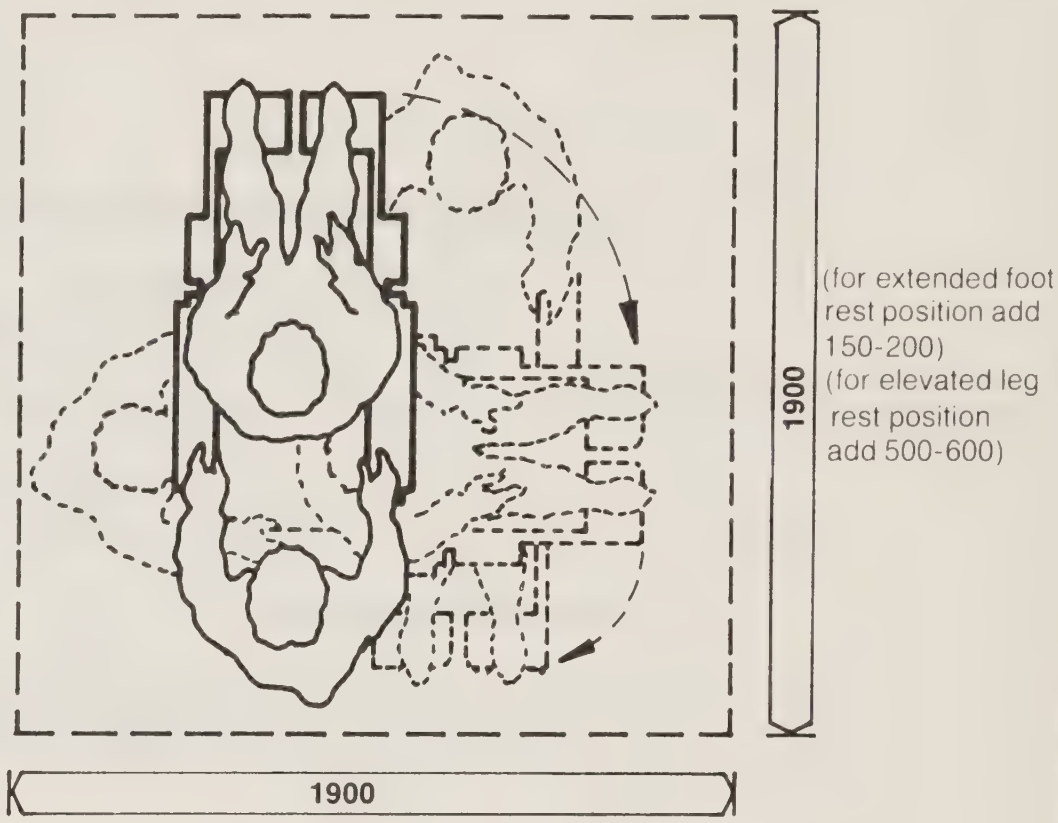
Standard DHSS (8L & 8G) see note 1

Users:
Assisted and independent users

INDEPENDENT WHEELCHAIR USERS TURNING THROUGH 180°



ASSISTED WHEELCHAIR USERS TURNING THROUGH 90° & 180° (& 360°)



(for extended foot rest position add 100)
(for elevated leg rest position add 350)

INDEPENDENT WHEELCHAIR USERS TURNING THROUGH 90°

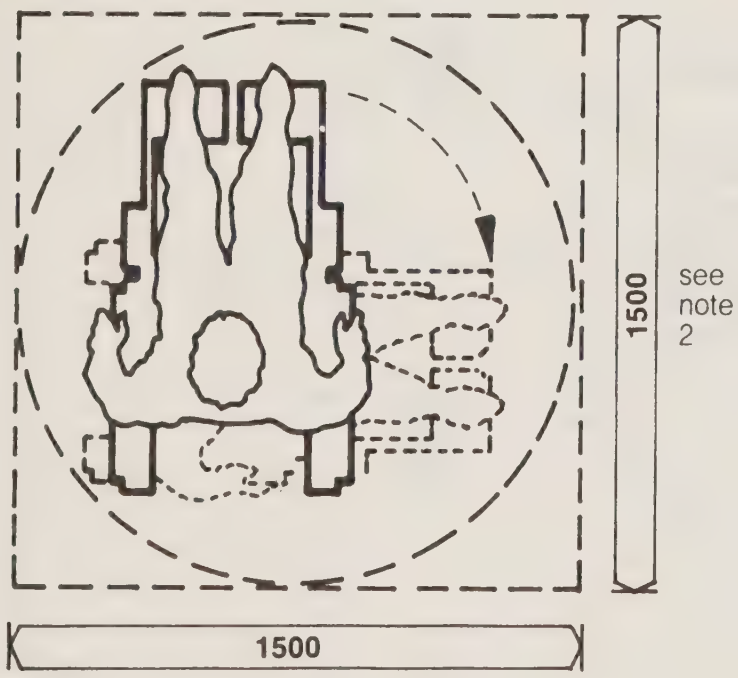


Fig.19

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Component envelope will also accept most types of wheelchair. However wheelchairs with elevated legrests, extended footrests, headrests, reclining backs etc, may result in a larger component space.

2. The 1900 x 1500 space is a recommended minimum for general circulation areas. In other areas, a clear space of 1500 diameter, as part of a larger space which also contributes to the space available for wheelchair manoeuvring is generally satisfactory.

NB. A skilled wheelchair user can achieve 180° and 360° turn in a space of 1500 x 1500 but this is extremely difficult and therefore not possible for inexperienced and/or debilitated users.

Activities
Passing through 900 door sets
(A) Frontal Approach

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)

Users
Assisted and independent

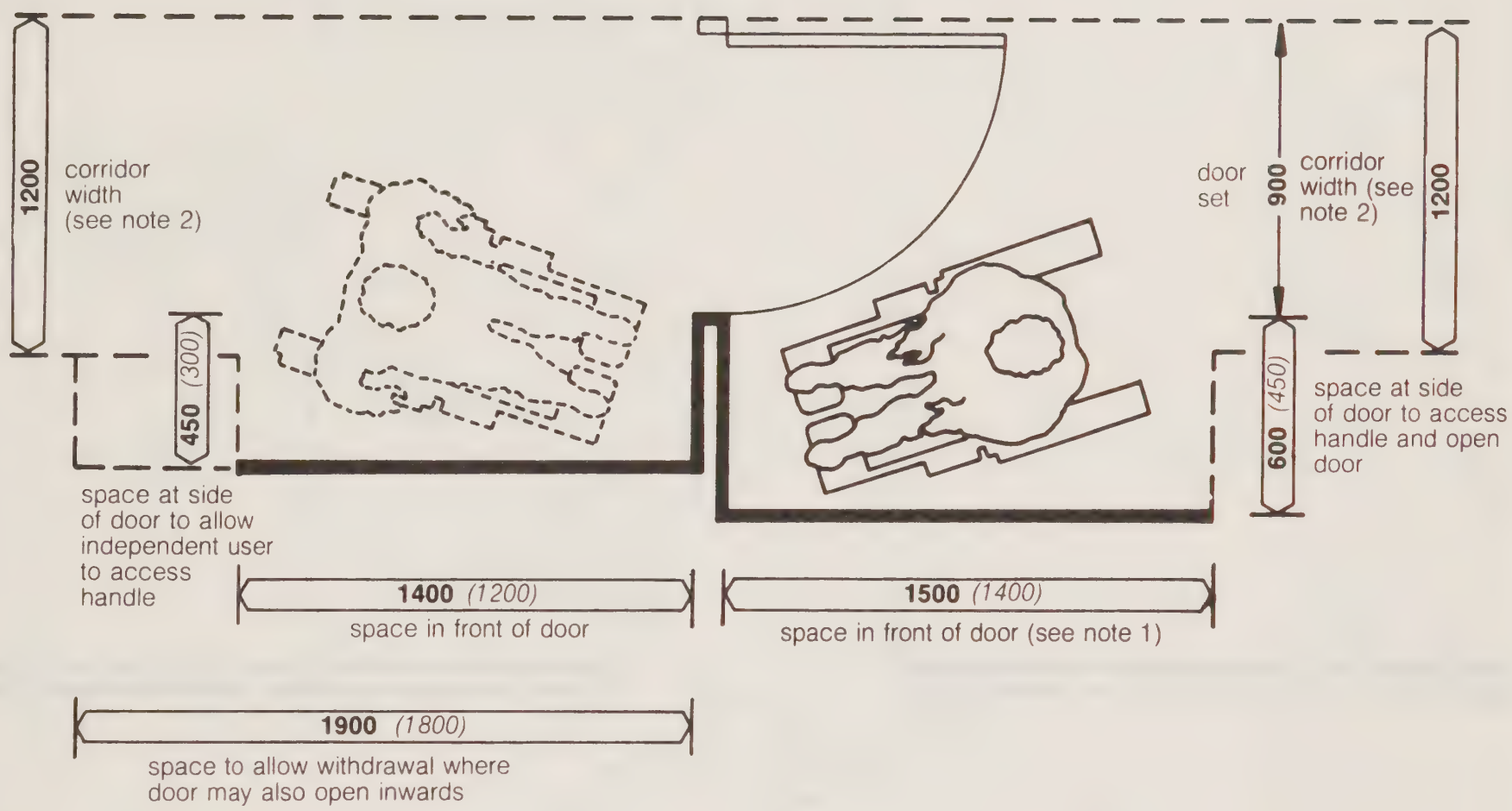


Fig.20

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. 1500 space in front of door is essential when only restricted space (450) is available at side of door.

2. Passageways used frequently by wheelchair traffic should be at 1400 (1200) wide. (NB. This does not allow two wheelchairs to pass, see WHEELCHAIR straight movement data sheets)

Activities
Passing through 900 door sets
B Lateral approach

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)

Users
Assisted and independent

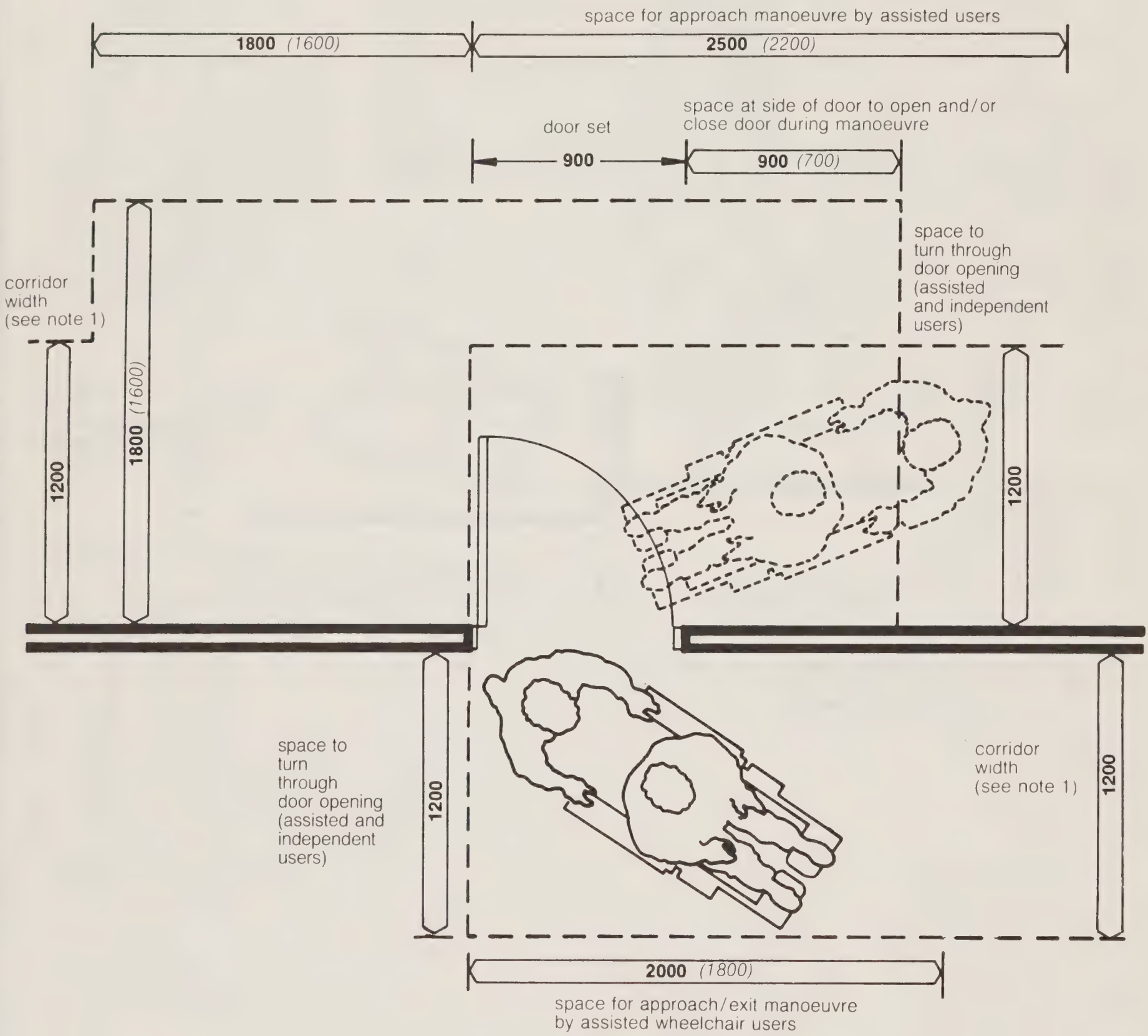


Fig.21

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Passageways used frequently by wheelchair traffic should be at least 1400 (1200) wide. (NB. This does not allow two wheelchairs to pass, see WHEELCHAIR straight movement data sheets)

Activities:
Passing through sliding door

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair
Standard DHSS 8L

Users:
Assisted and independent users.

Lateral approach

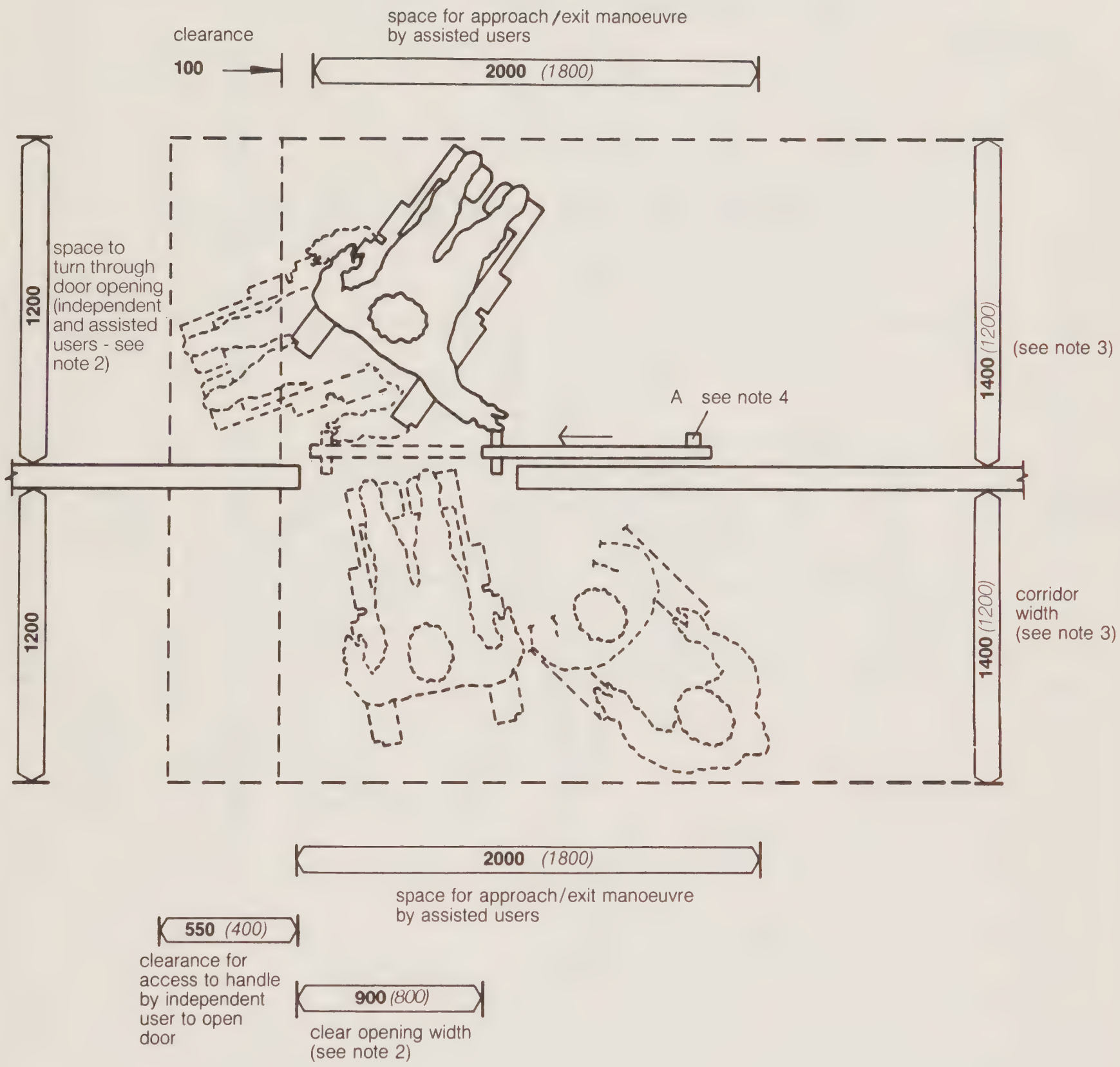


Fig.22

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Sliding doors - provided that they can easily be operated, are often favoured by the wheelchair disabled, but tend to offer fewer advantages for the ambulant and semi ambulant.

2. It is note recommended that restricted openings be used in this position, because manoeuvring of wheelchair - for both independent and assisted conditions - is very demanding. Openings of 850-900 are preferred where lobby depth is also minimal. Where 800 opening only is possible, lobby depth of 1400 will provide more satisfactory conditions.

3. Passageways used frequently by wheelchair traffic should preferably be 1400 *(1200)* wide.

4. A single centrally positioned pull handle is possible in some situations, ie where they do not impede door opening.
A second handle in position 'A' is required for independent users to open door where manoeuvring space beyond door opening is not available.

Activities:
Passing through sliding door.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS 8L

Users:
Assisted and independent users.

Frontal Approach

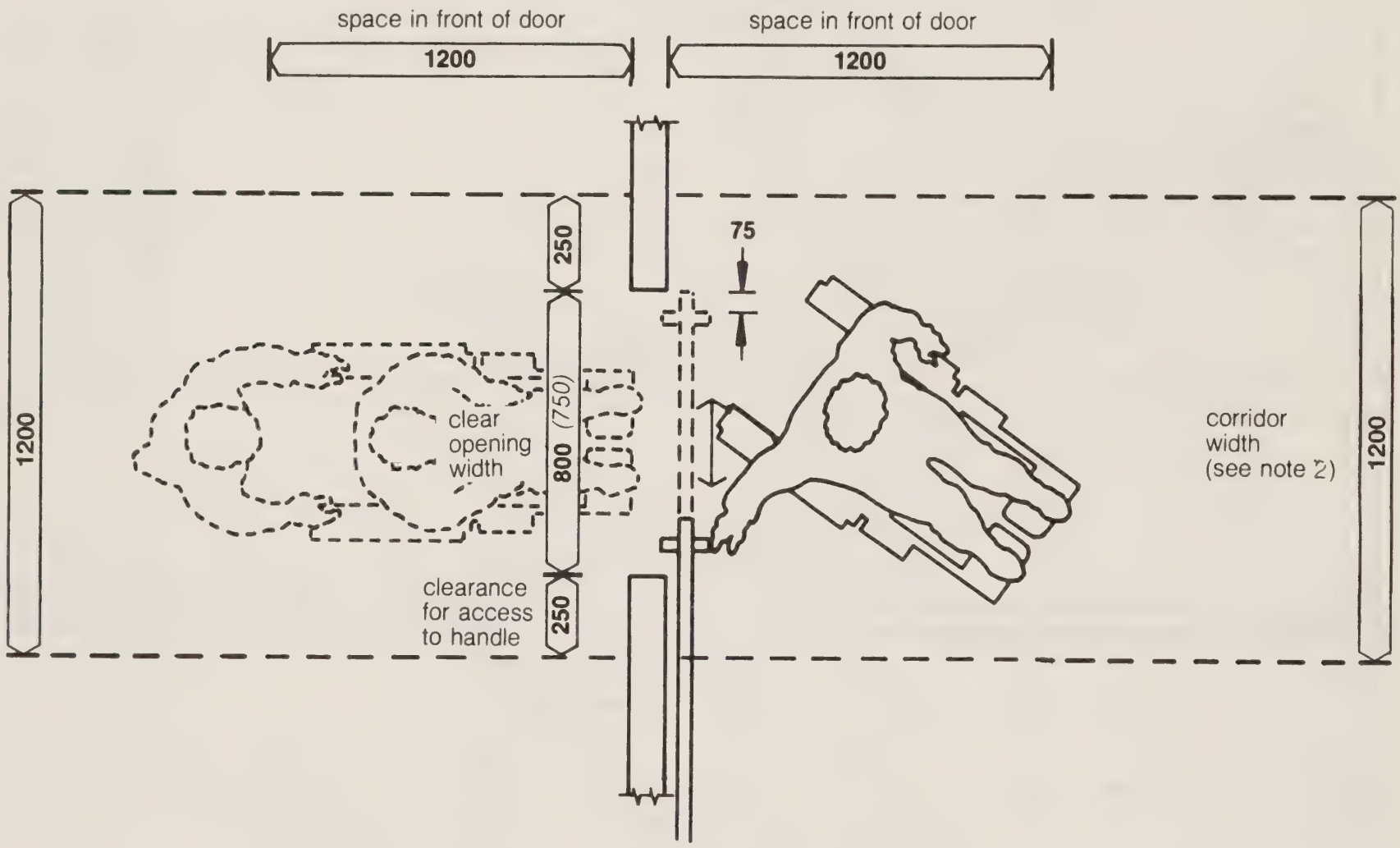


Fig.23

1350 *(1300)*[1]

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Sliding doors - provided that they can easily be operated, are often favoured by the wheelchair disabled, but tend to offer fewer advantages for the ambulant and semi ambulant.

2. Passageways used frequently by wheelchair traffic should preferably be 1400 (1200) wide.

3. A single centrally positioned pull handle is possible in some situations, ie where they do not impede door opening.

Activities:
Parking and storage of wheelchairs, side by side. See also WHEELCHAIR, parking/storage end to end.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)

Users:
Staff

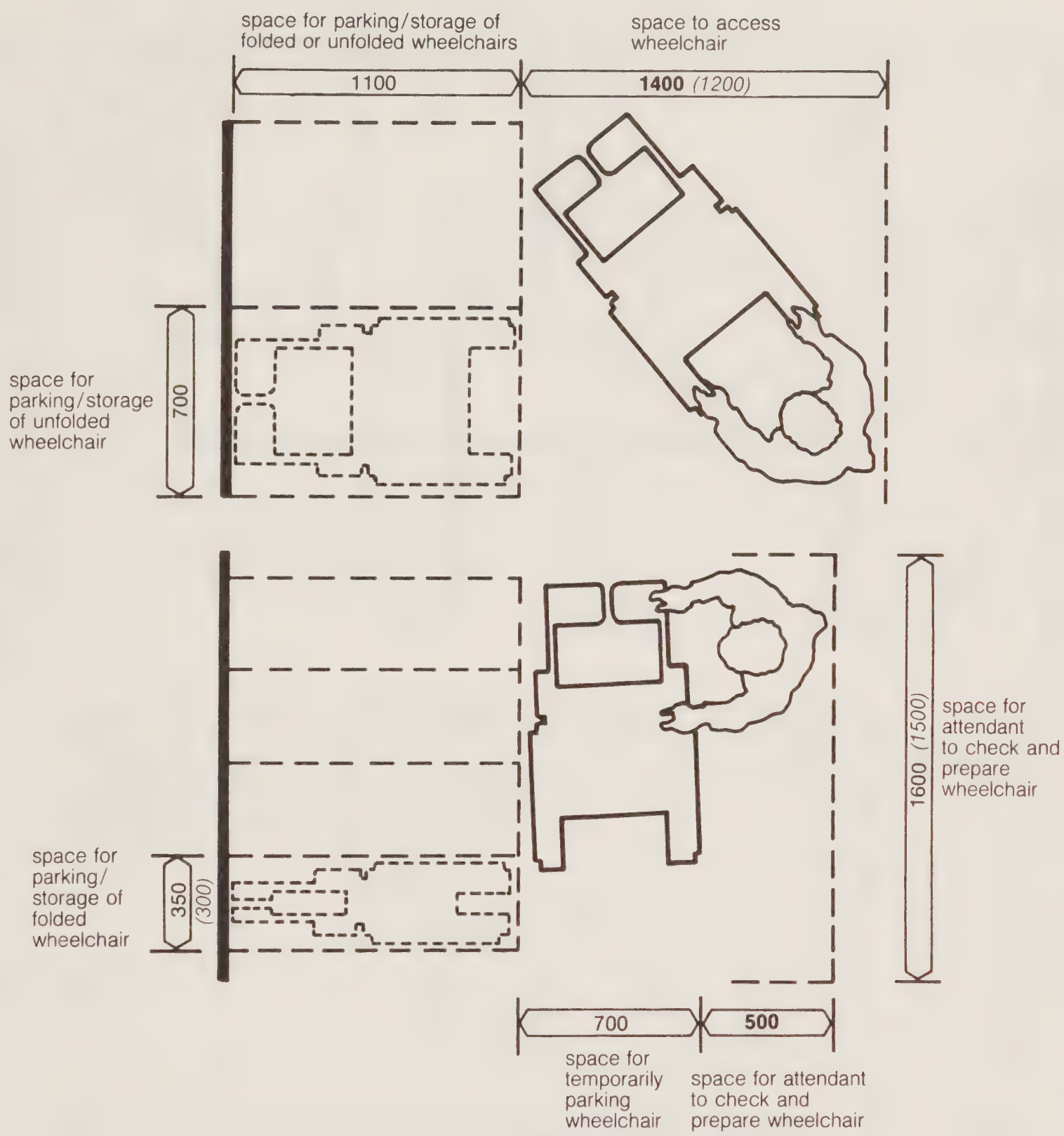


Fig.24

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Activities:
Parking and storage of wheelchairs, end to end. See also WHEELCHAIR, parking/storage, side by side.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)

Users:
staff

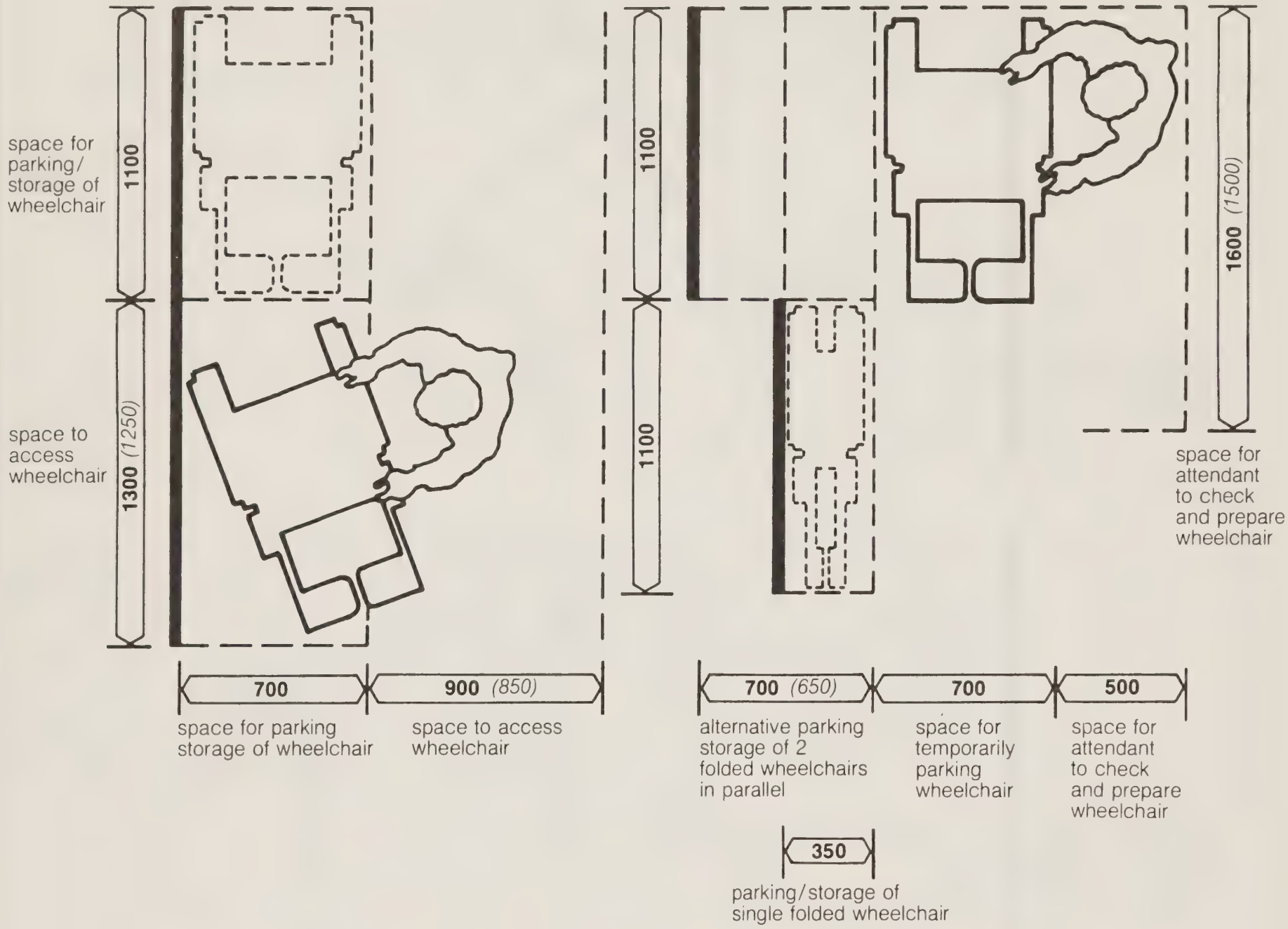
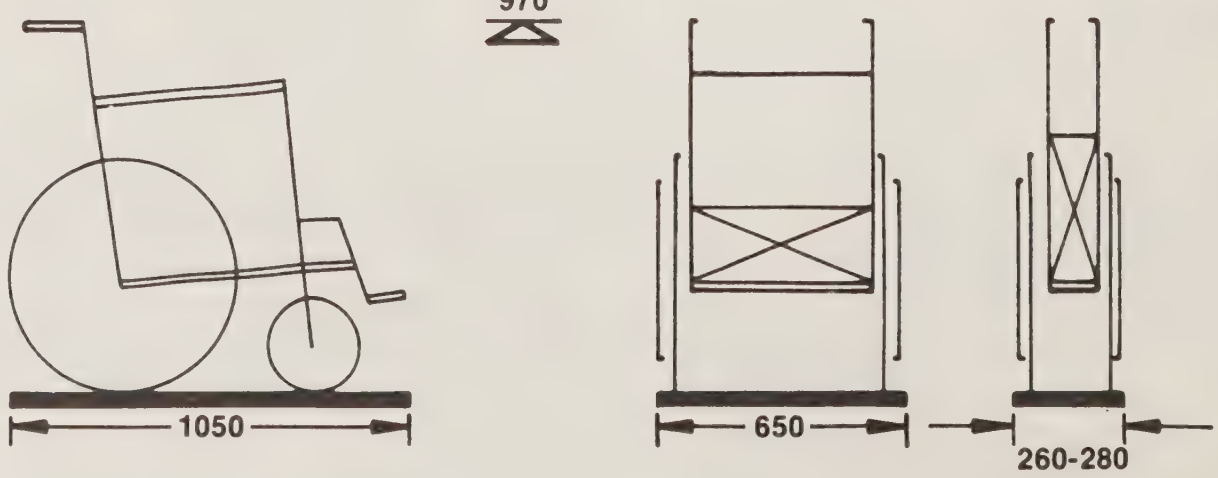


Fig.25

1350 *(1300)*

Preferred minimum: Restricted minimum (not recommended for general use: see explanatory notes)

Wheelchair Dimensions



Activities:
Independent and assisted wheelchair users passing through entrance lobbies with single leaf doors.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L).

Users:
Independent and assisted wheelchair users.

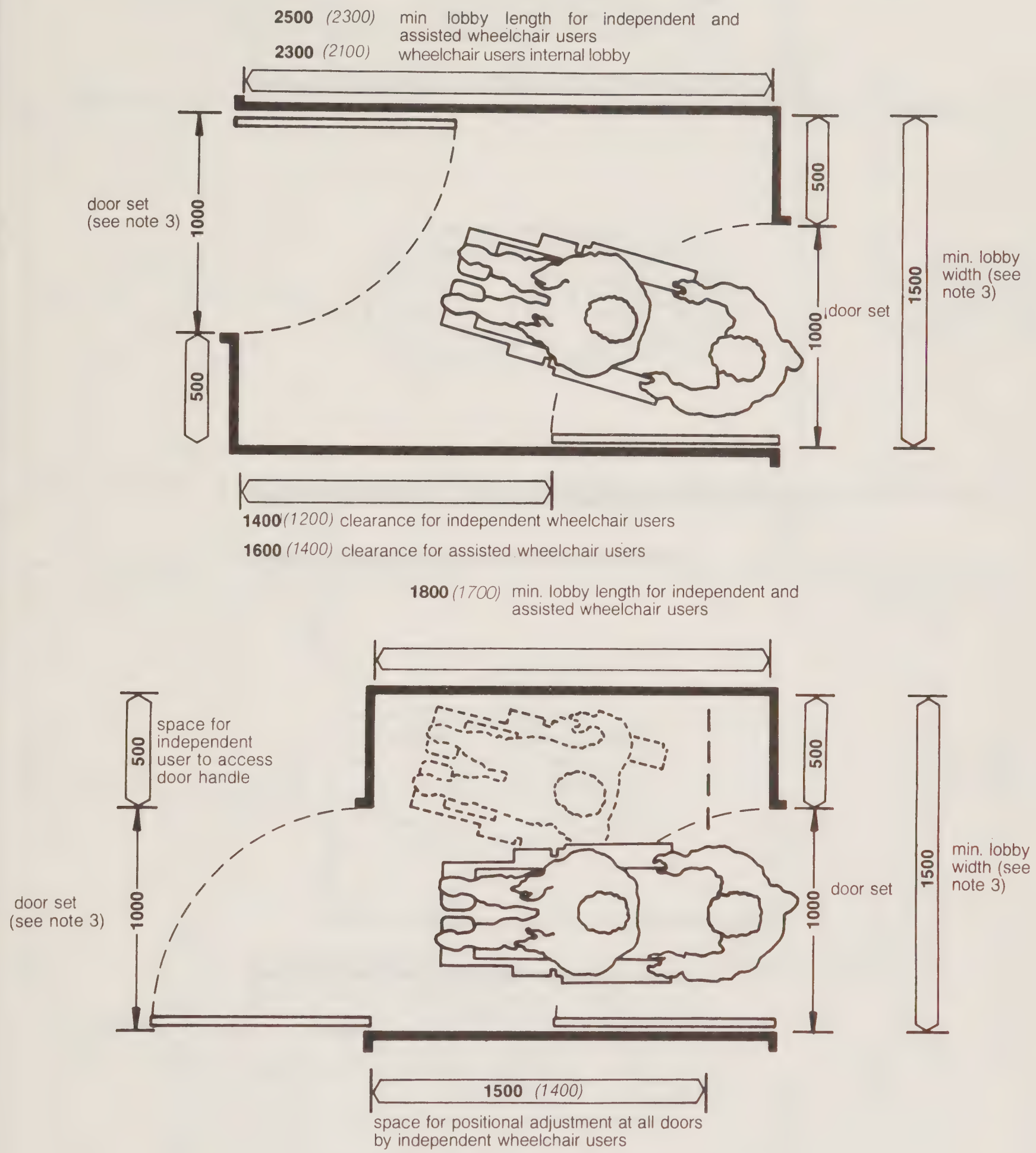


Fig.26

1350 *(1300)*

Preferred minimum: Restricted minimum (not recommended for general use: see explanatory notes)

Notes:

1. See also BS5810 (1979)

2. Lobby lengths slightly larger than the minimum shown here will facilitate safer and generally easier use in high traffic areas (400 - 500 in the case of the two smaller lobbies).

3. Single leaf doors - 600 space to side of door is preferred where it is necessary to close door when passing in opposite directions resulting in an increase in lobby from 1500 to 1600. Use of 900 door sets is also possible but results in more restricted access - lobby width becomes 1400 (with 500 at side of door) and 1500 (with 600 at side of door).

Activities:
Passing through entrance lobbies with double leaf doors.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS (8L)

Users:
Independent and assisted users

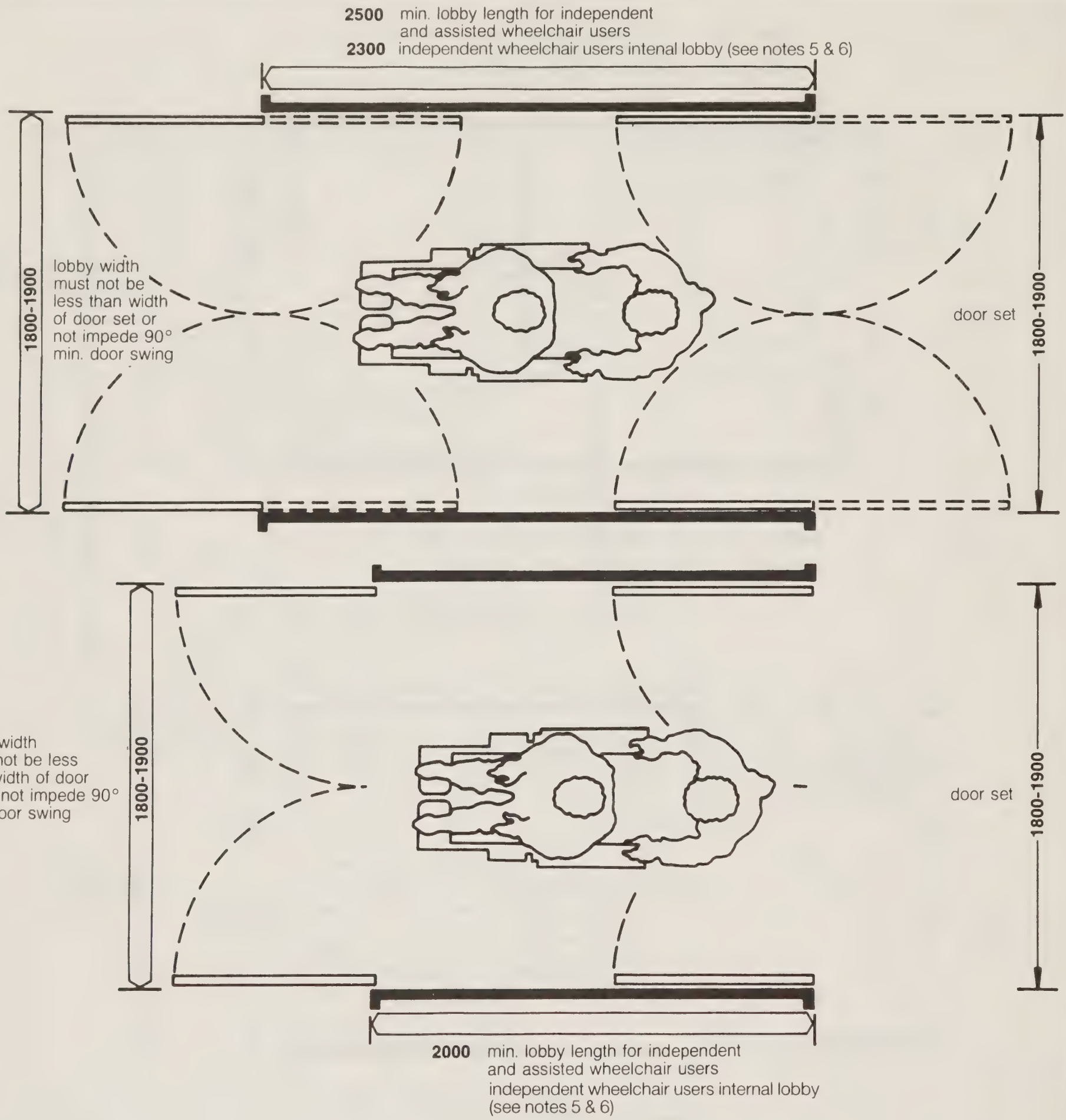


Fig.27

1350 *(1300)*[1]

Preferred minimum: Restricted minimum (not recommended for general use: see explanatory notes)

Notes:

1. See also BS5810 (1979)

2. Lobby lengths slightly larger than the minimum shown here will facilitate safer and generally easier use in high traffic areas (400 - 500 increase in the case of the two smaller lobbies).

3. Dimensions are between door faces of double doors.

4. Automatic doors - minimum lobby lengths for double doors should be
a) for side hung doors 2500mm.
b) for sliding doors 2100 mm.

5 Restricted conditions are unacceptable because of the difficulty presented by manoeuvring through double doors.

6. All lobby length dimensions to be between door faces.

Activities:
Passing through automatic doors (sliding)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Wheelchair

Standard DHSS 8L

Users:
Assisted and independent users

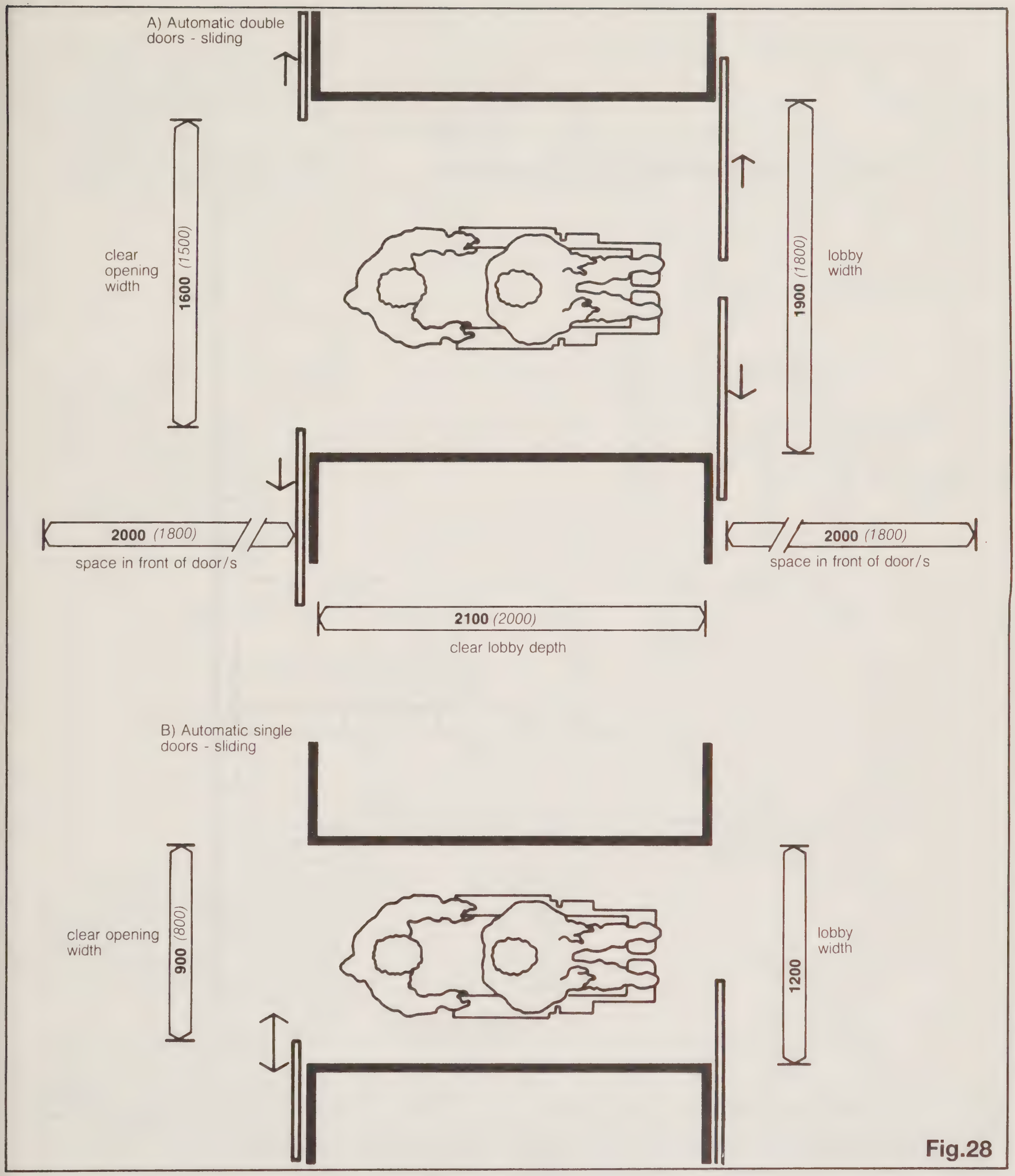


Fig.28

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Double door lobbies are generally preferred in busy public areas.
2. Sensory units should be positioned at least 800 forward of leading side of door

Activities:
Support when standing or sitting, or steadying using grabrail during raising or lowering postures.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Grabrail (2)

Partially capable, elderly, general usage.

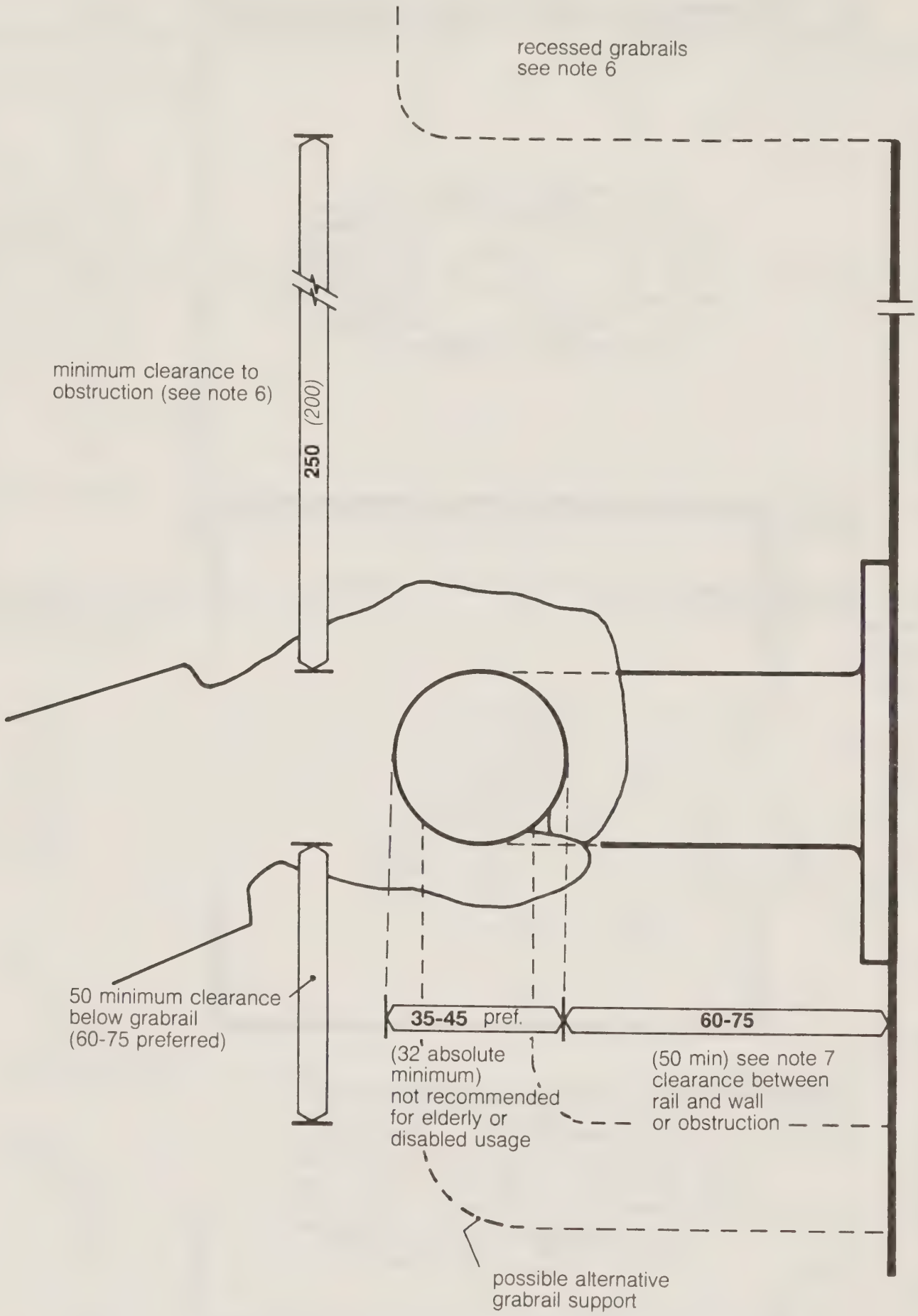


Fig.29

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

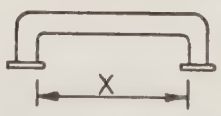
Notes:

1. (a) Height of rail for standing person = 900-950

b) Height of rail for seated person = 750 - 800

2. Minimum length of rail:

one hand = 150(x)
two hands = 500 (x)



A minimum length of 600-800 provides better lateral stability for elderly or disabled users.

3. Horizontal grabrails are preferred as people tend to push on them to get up or sit down. If the pulling motion is required the grabrail should be vertical, but restricted in length to one or two handed grip, as required (recommendations max. (x) length 200 and 500 respectively).

4. The finish on the grabrail should be non-slip and not polished.

5. For specific design of grabrail see separate data sheets eg WC, Bathroom.

6. Recessed grabrails are not generally satisfactory and should be avoided in patient areas. A minimum clearance of 250 above a grabrail should be provided and all corners or sharp edges rounded or eliminated. Adjacent surfaces should not be abrasive.

7. Restricted space should not be used for external grabrails as this dimension will not accommodate gloved hands, particularly where users are arthritic.

Activities:
Opening and closing doors using lever or, pull or push handles.
(see also HTM 59)

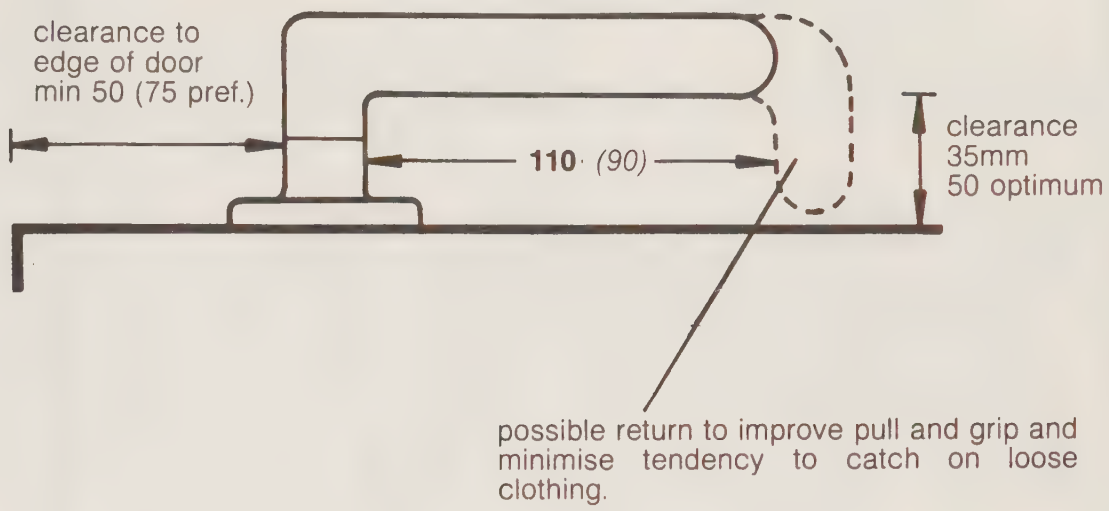
DHSS · **Ergonomic data bank:**
Component-user data sheet, not to scale

Door ironmongery

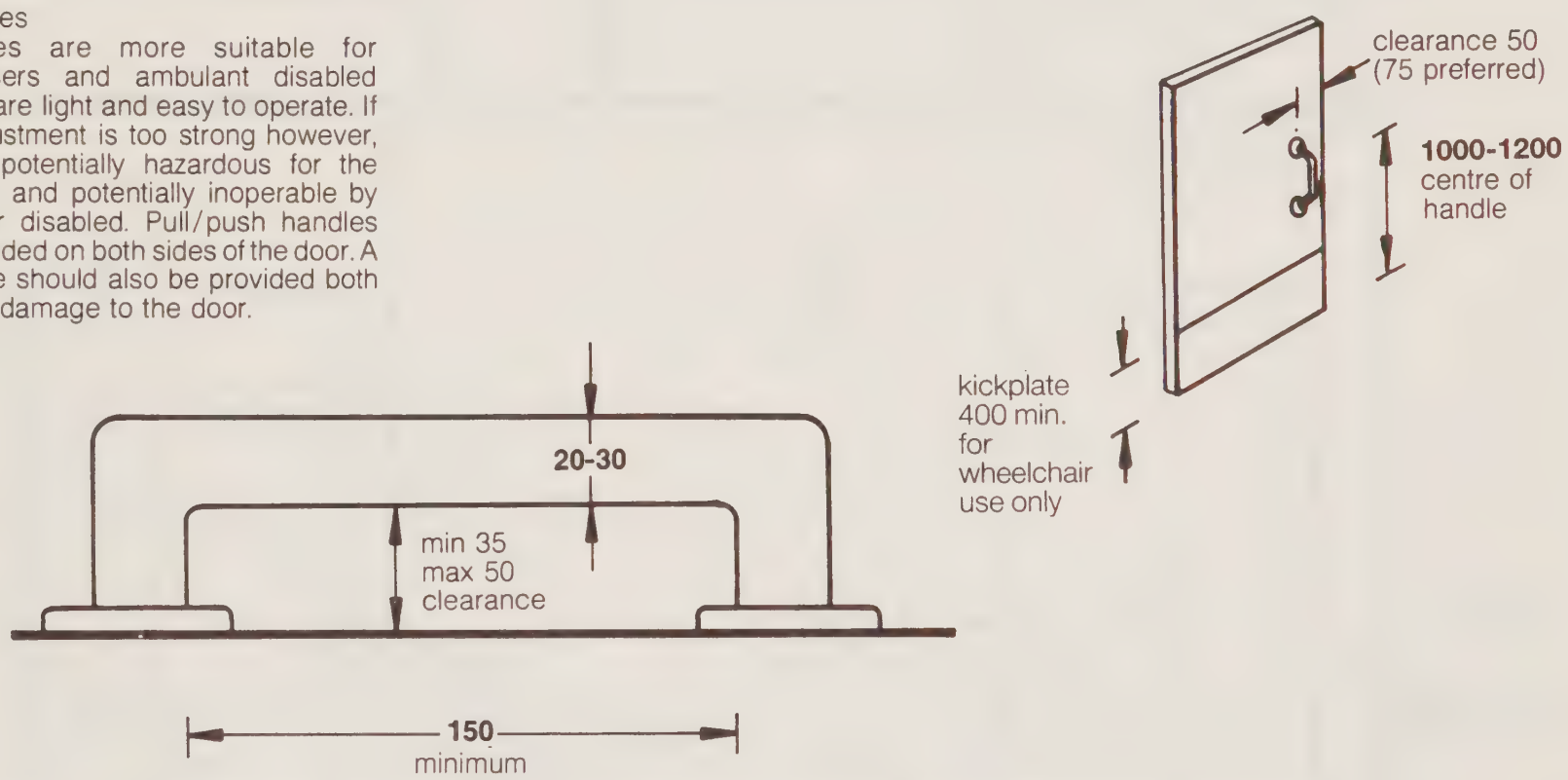
Users:
Ambulant, semi-ambulant and wheelchair users

Notes:

1. Latched doors
If doors are latched it is preferable to have lever handles: (door knobs are not recommended for use by elderly or disabled users.Automatic doors should be considered for public areas frequently used by wheelchair disabled).
Finish should preferably not be highly polished and the design should be devoid of sharp edges. Spring action must be light and easy.



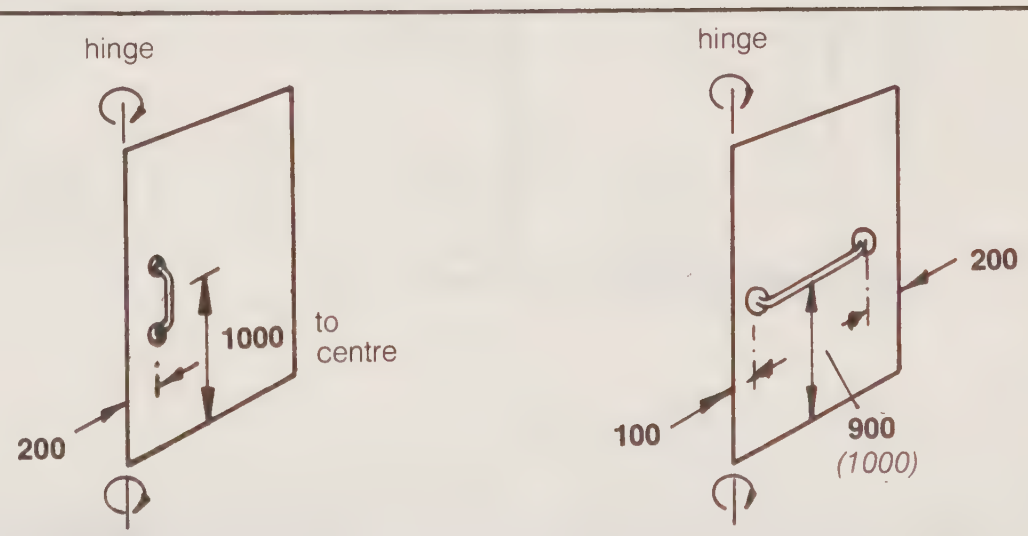
2. Roller catches
Roller catches are more suitable for wheelchair users and ambulant disabled provided they are light and easy to operate. If the spring adjustment is too strong however, the action is potentially hazardous for the semi-ambulant and potentially inoperable by the wheelchair disabled. Pull/push handles should be provided on both sides of the door. A deep kick plate should also be provided both sides to avoid damage to the door.



3. Self-closing doors.
Self-closing doors should be provided where frequent usage is by wheelchair users or semi-ambulant disabled. Spring resistance must be very light during opening action. Spring door closers should incorporate a delayed action closing device, with the door being held at angles above 70°. It is essential that the door can open to 90° to enable wheelchair movements.

4. The centre of the door handle should be 1000 *(850-1200 max.)* from the floor.

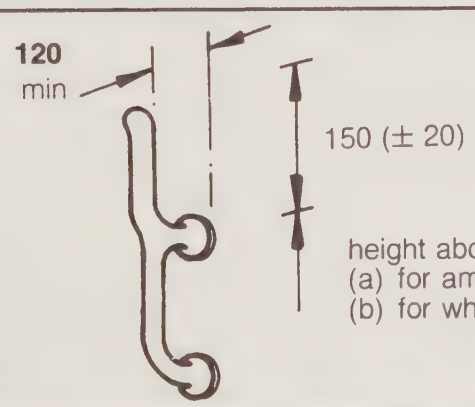
5. An auxilliary pull handle should be provided if the door is frequently used by wheelchair users and is not fitted with a self closing device. Horizontal handle, as shown below, preferable.



For handle dimensions see note 2.

6. For people with severe hand or arm limitations elbow pull handles are useful, but because of problems with clothes catching, etc. they are not recommended for general usage. (Separate facilities are essential for ambulant and wheelchair users).

eg.



(The provision of an associated pull handle is not essential, but gives greater stability to the design which may otherwise be subjected to excessive stress during operation).

height above floor levels:
(a) for ambulant users 1200
(b) for wheelchair users 800

Fig.30

Activities:
Door handles and provision of vision panels

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale.

Doors

single leaf and double leaf
(see note 3)

Users
wheelchair users and ambulant users

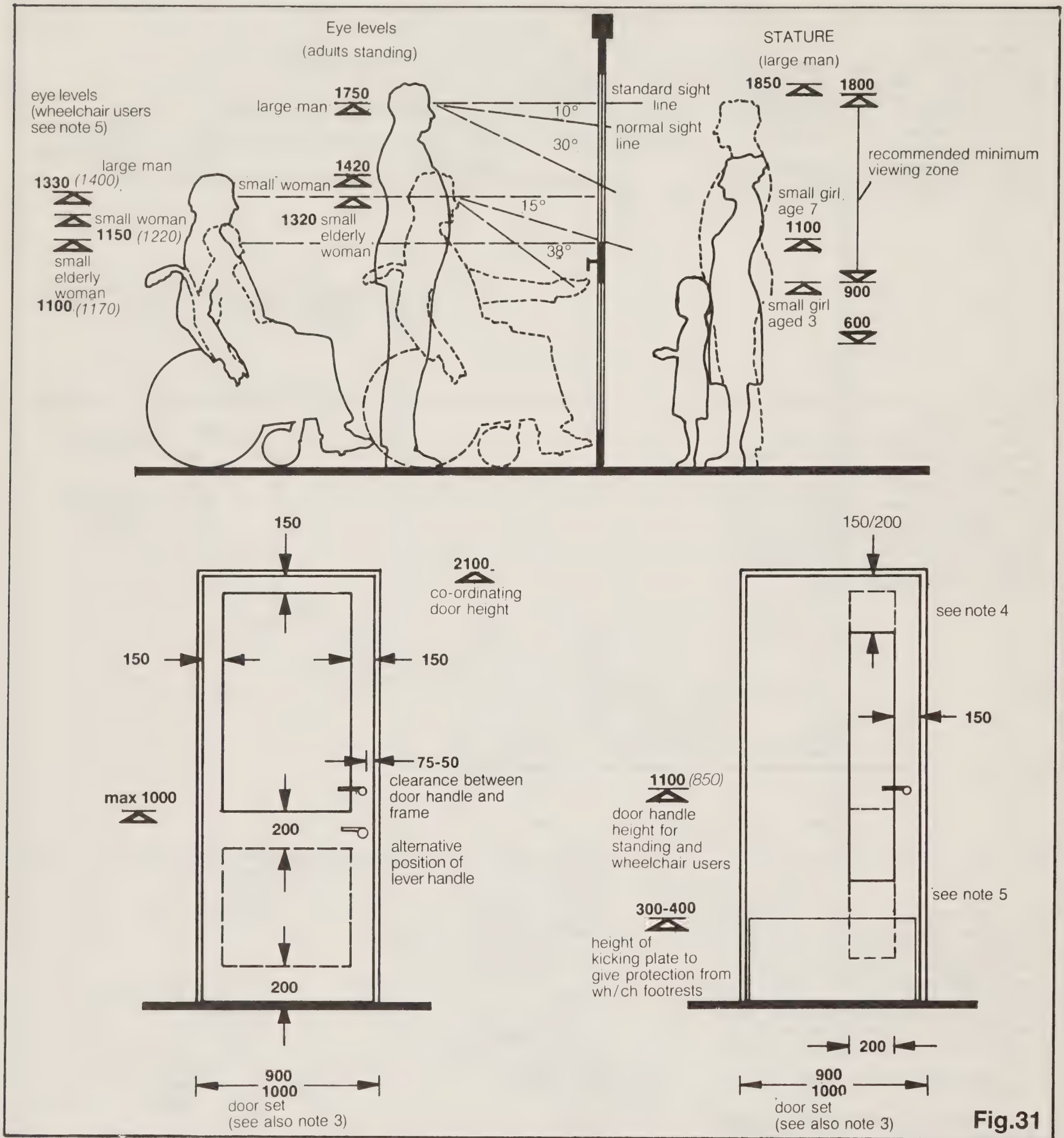


Fig.31

Notes:

1. The physical dimensions of the doors shown on this data sheet are in accordance with HTM 58 'Doorsets'.

2. Special consideration should be given to the safety of door glazing and positioning of vision panels where children are involved. The provision of low level vision panels is particularly important and these should be resistant to breakage.

3. The following are co-ordinating dimensions for doorset widths. (S) = single leaf. (D) = double leaf.

(a) 600(S), 700(S), 800(S) - none of these are recommended for use in health buildings, especially where wheelchair or other disabled are involved.
(b) 900(S) and 1000(S) are preferred minimal for area used by disabled persons.
(c) 1500(D), 1800(D), 2100(D) - all are suitable for disabled usage, but 1500 door set must be of 1 + 1/2 door variety.

4. The minimum glazed areas shown may be exceeded in any direction ie there is functional maximum glazed areas, BUT glazed doors must be perceptible to partially sighted persons.

5. ( ) bracked figures refer to eye levels of users using 100 deep cushion on wheelchair seat.

Activities:
Use of switches. Use of sockets inserting and removing plugs.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Switches & sockets
wall mounted

Users:
wheelchair users and partially capable (ambulant disabled).

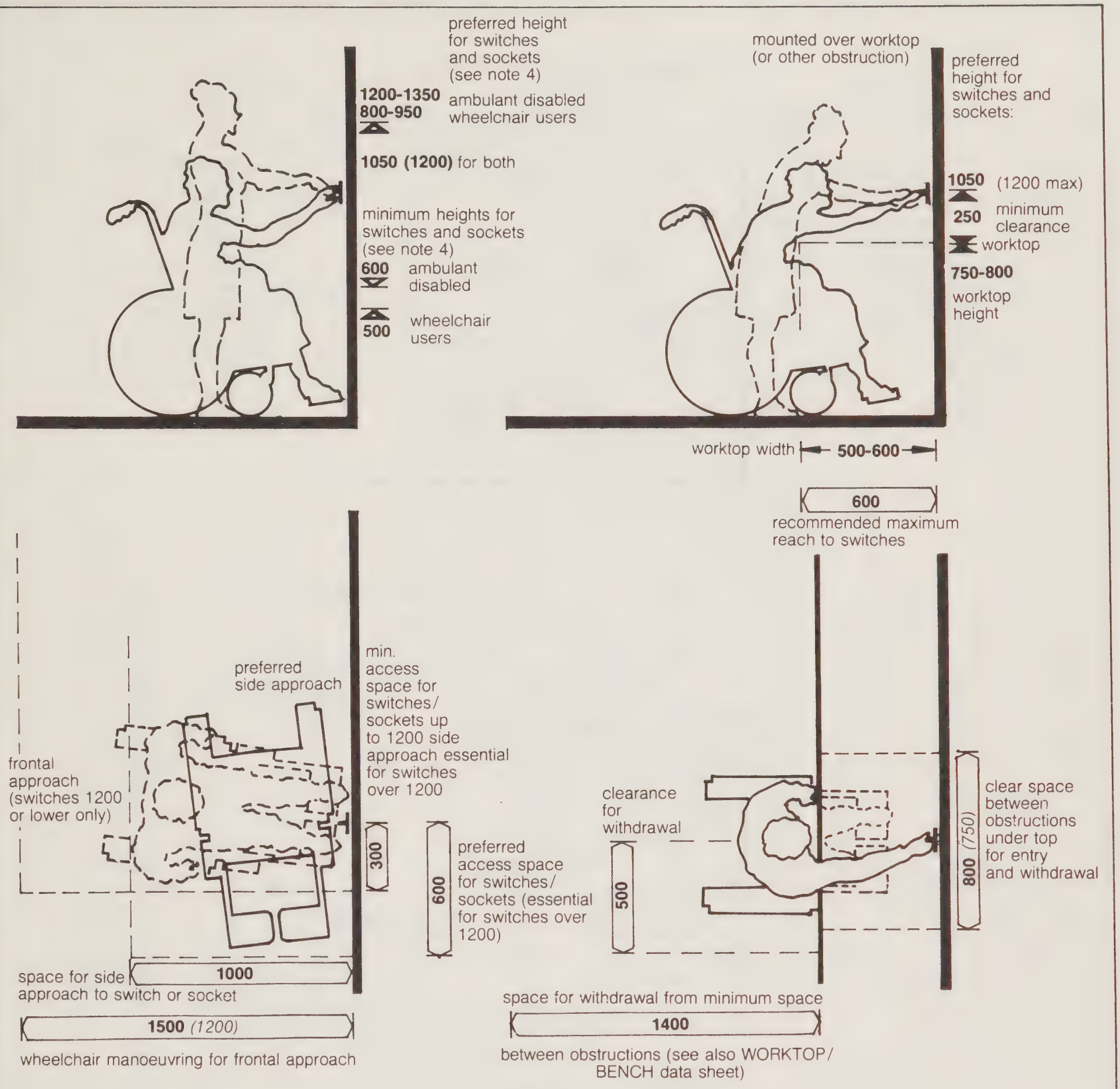


Fig.32

1350 :*(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Types of switch - Rocker switches are easier to operate by persons with finger or hand impairment providing wide rockers are selected. Toggle switches may be preferred to rocker switches for these situations where it is desirable to discern easily whether the switch is 'on' or 'off', but the toggles should be of a type which are long in length and light to operate. Switches controlling fixed appliances (other than lighting) should, in any event, incorporate an "on/off" indicator light.

2. Spacing of switches - Switches for use by disabled persons should be well spaced - preferably 85 minimum centre-to-centre therefore multi-gang switchplates should be avoided. Where wiring regulations or functional requirements dictate the provision of ceiling mounted switches, the Pull-cords should be provided with operating dollies, having a preferred minimum width or diameter or 45 mm.

3. Socket Outlets - All sockets for use by disabled persons should be switched. Adequate provision is important to avoid the need to use adaptors, which can be dangerous. Double socket outlets with the switches located between the sockets will be difficult for some disabled persons to operate correctly and therefore preferably should be avoided. Double socket outlets with the switches located at the outer edges are more suitable but the choice of manufacturers who can currently supply these is very restricted. An alternative for situations which functionally require adjacent socket outlets for use by disabled persons is to provide single gang accessories mounted on dual boxes.

4. Minimum heights of low sockets should be applied where trailing flexes would be hazardous. (Hooks provided adjacent to socket outlets on which leads not in use can be hung, provide added convenience for disabled users).

Activities:
Use of telephone, including use of telephone directories

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Telephone Booth

Public with standard wall mounted GPO STD coin box (see note 2)

Users:
wheelchair

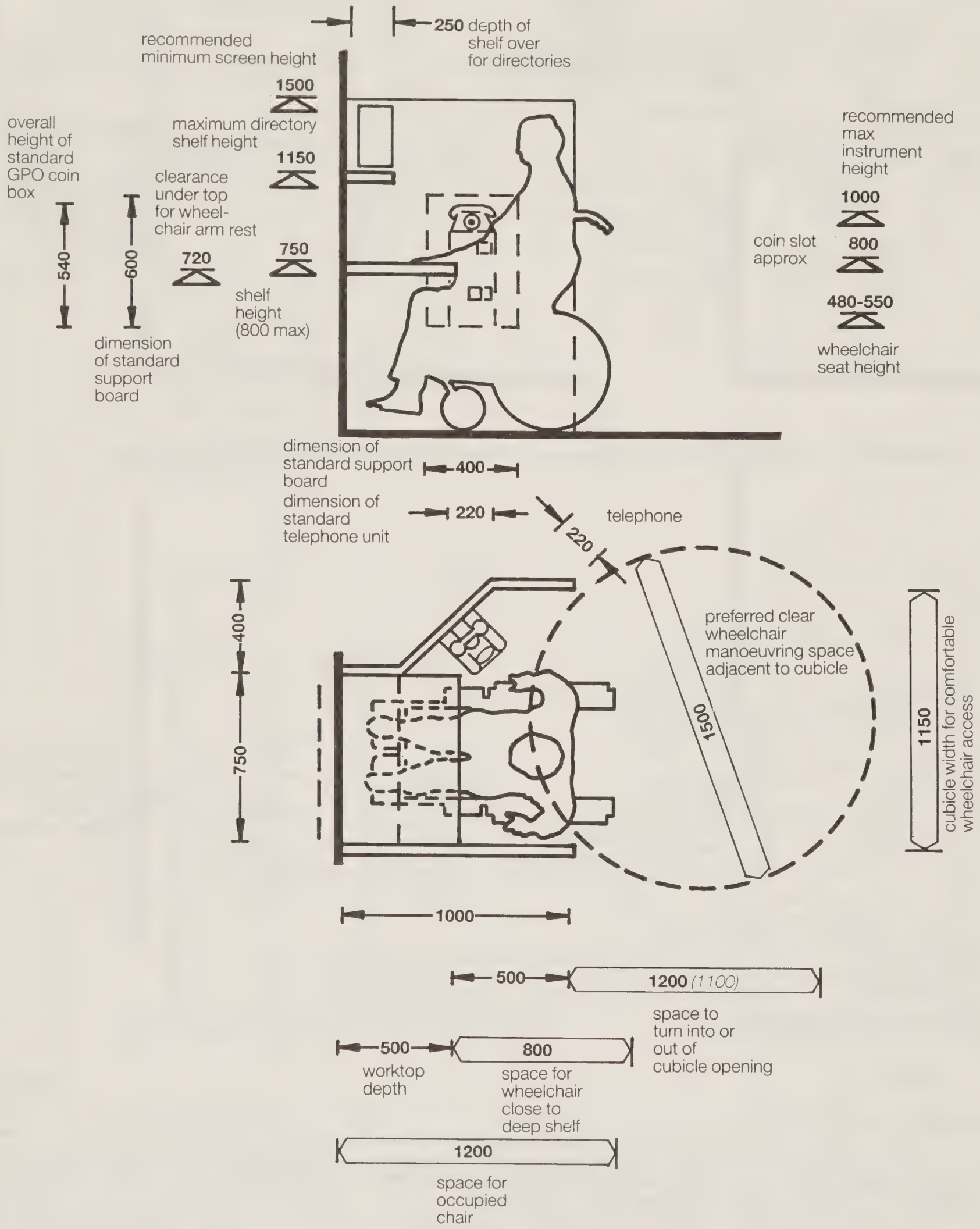


Fig.33

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

1. A new or different coin box arrangement may require that these dimensional recommendations be reconsidered.

2. A handed layout is preferred for the second cubicle where 2 cubicles are provided to accommodate right or left hand ability only.

Activities:
Patient reporting to confirm arrival or book appointment, collect or deliver messages or deposit samples for testing. WHERE CONVERSATION WITH RECEPTIONIST MAY BE CONFIDENTIAL. Receptionist to also monitor all public traffic in and out of the building, patients in the waiting room and oversee the sequence of consultations and treatments: take internal and external telephone calls, and undertake necessary admin. related to patient reception.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

General Reception Counter

for Seated and Wheelchair patients
(with optional space for VDU terminal)

Users:
Receptionist with patient and 1 or 2 escorts

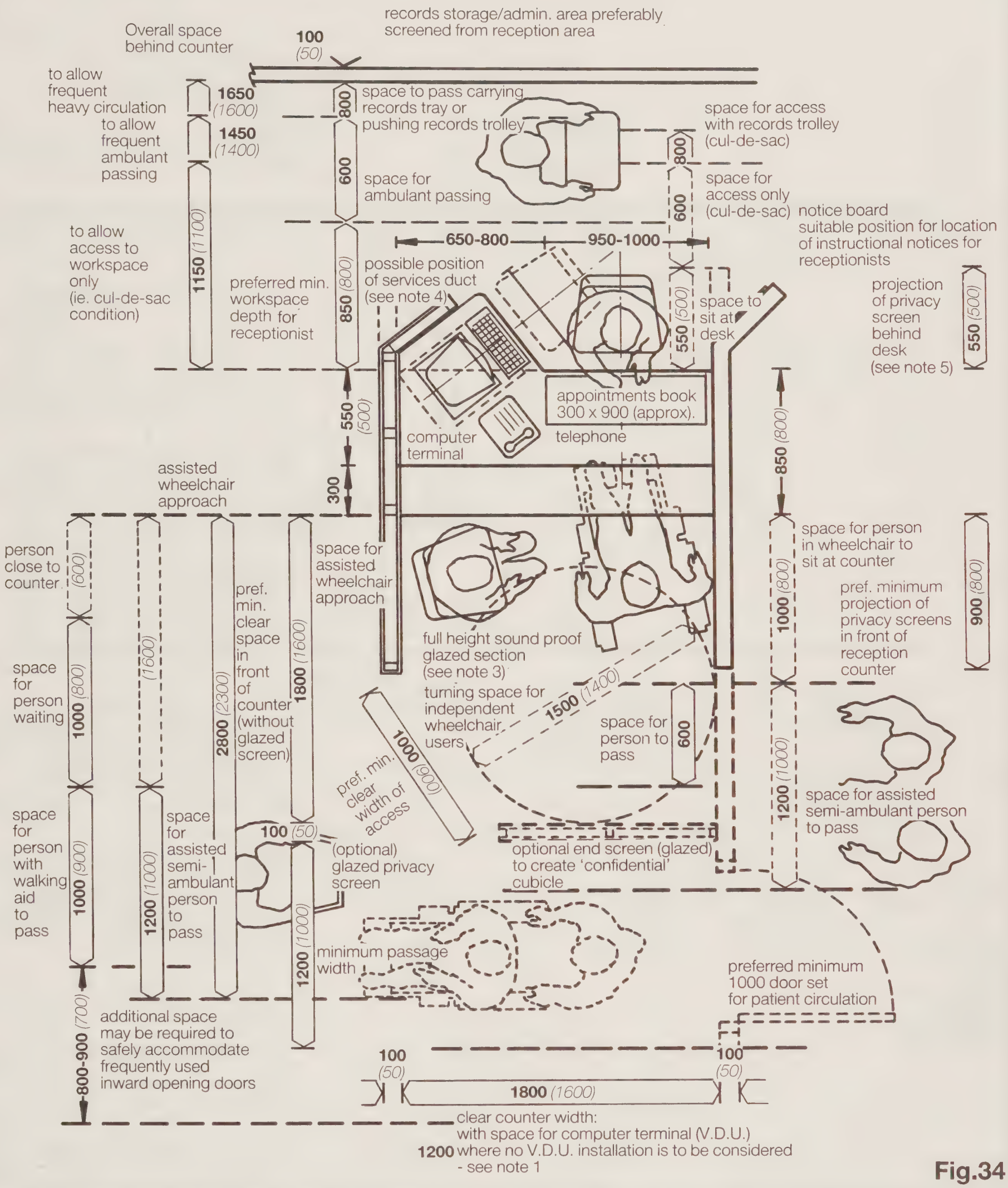


Fig.34

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

See General Reception Counter Fig.35 & 36

Activities:
Patient reporting to confirm arrival or book appointment, collect or deliver messages or deposit samples for testing. WHERE CONVERSATION WITH RECEPTIONIST MAY BE CONFIDENTIAL. Receptionist to also monitor all public traffic in and out of the building, patients in the waiting room and oversee the sequence of consultations and treatments: take internal and external telephone calls, and undertake necessary admin. related to patient reception.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

General Reception Counter

(with optional space for VDU terminal)
for Seated and Wheelchair patients

Users:
Receptionist with patient and 1 or 2 escorts

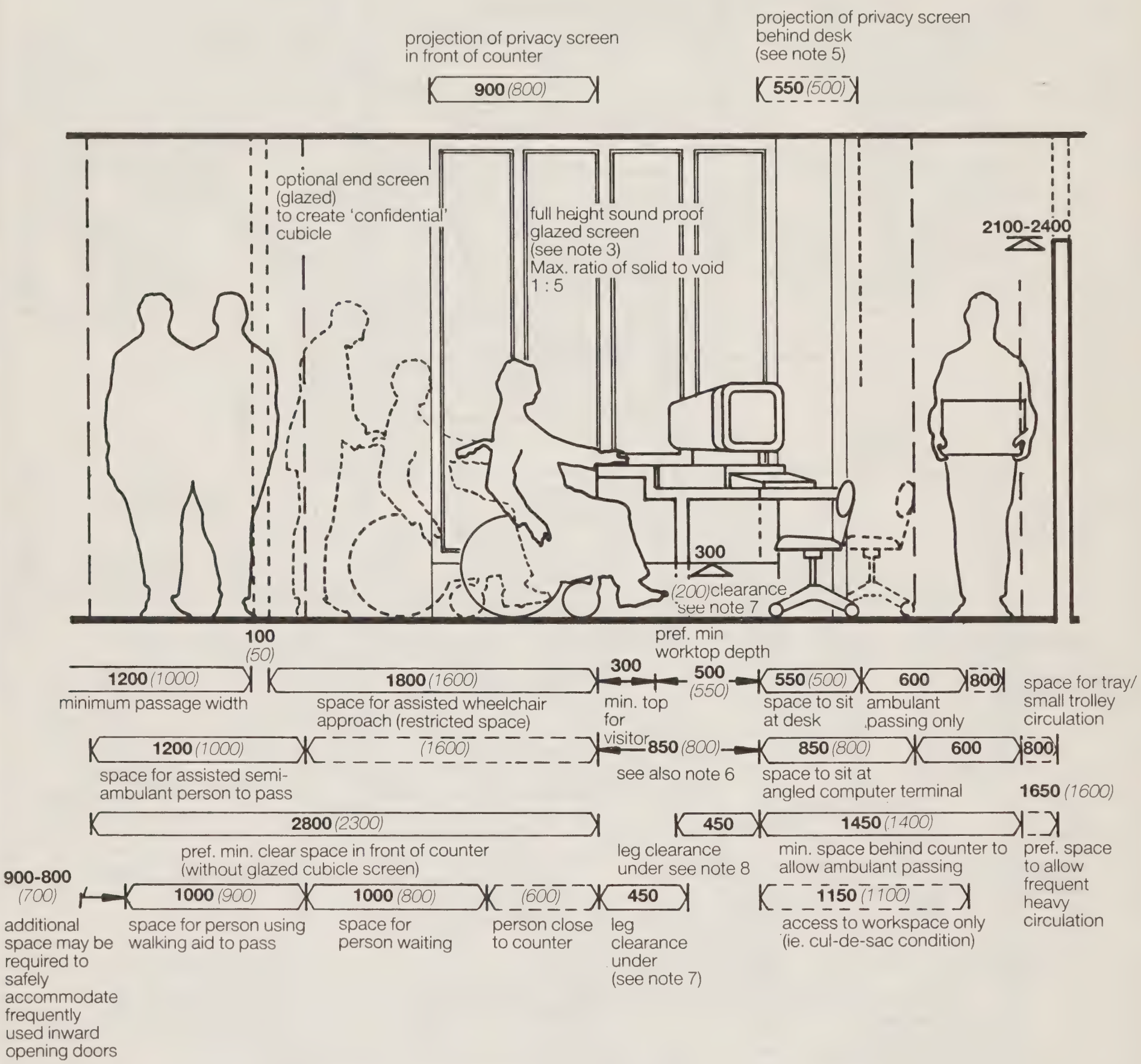


Fig.35

1350

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

(A) This sectional elevation should be read in conjunction with the plan shown in General Reception Counter Fig.34.

(B) For design notes please see General Reception Counter Fig.36.

General Reception Counter, Notes

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

1. Reception counter width 1800 (1600 minimum) anticipates the probable future introduction of a VDU.

Basic worktop depth of 550 *(500)* must also be increased to provide adequate and convenient support for an average screen, disc drive and keyboard assembly.

Where a computer terminal is not to be considered, reception counter width should not be less than 1200.

2. To minimise the possibility of queuing at the reception counter, it is recommended that dispensing practices should provide a separate prescriptions counter, manned by another member of staff.

3. Full height double glazed (soundproof) screens are recommended between adjacent points to maximise the confidentiality of discussions with the receptionist. Screen mullions or supports must not unnecessarily impede the ability of a single receptionist to monitor satisfactorily the access doors, reception area, waiting room, and if possible the pram parking area. (It is generally recommended that the ratio of solid to void should not exceed 1 : 5). No screen is required where this boundary is the end wall of the reception area, but plan form must ensure that receptionist can see comfortably all areas to be monitored.

4. The angled configuration of screens improves privacy between adjacent reception points and provides better access for receptionist/s. This section need not be glazed, can be utilized as a service duct, and can also provide a necessary and convenient pin board area for staff notices and memoranda on the reverse side.

5. Although the projection of the privacy screen behind the counter does increase the travel distance between two counter workstations when manned by only one receptionist, it is necessary if confidentiality is to be maintained during concurrent use of the workstations.

6. An open seated reception facility is generally regarded as providing the most relaxed (and therefore the most satisfactory) conditions. However, the provision of safety or security screens may be essential in some circumstances in the interest of staff safety. They should be used only when this is unavoidable, as they significantly inhibit communication between receptionist and visitor.

7. Where clearance for legs and feet (at floor level) is inadequate it is recommended that division should not continue to floor level.

Fig.36

Activities:
Viewing Signposts. See also SIGNPOSTING (2) VIEWING DISTANCE/HEIGHT and SIGNPOSTING (3) VIEWING DISTANCE/WIDTH

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Signposting (1)

Eye Levels/Focal Distances
(General locational recommendations)

Users:
Patients, staff, visitors

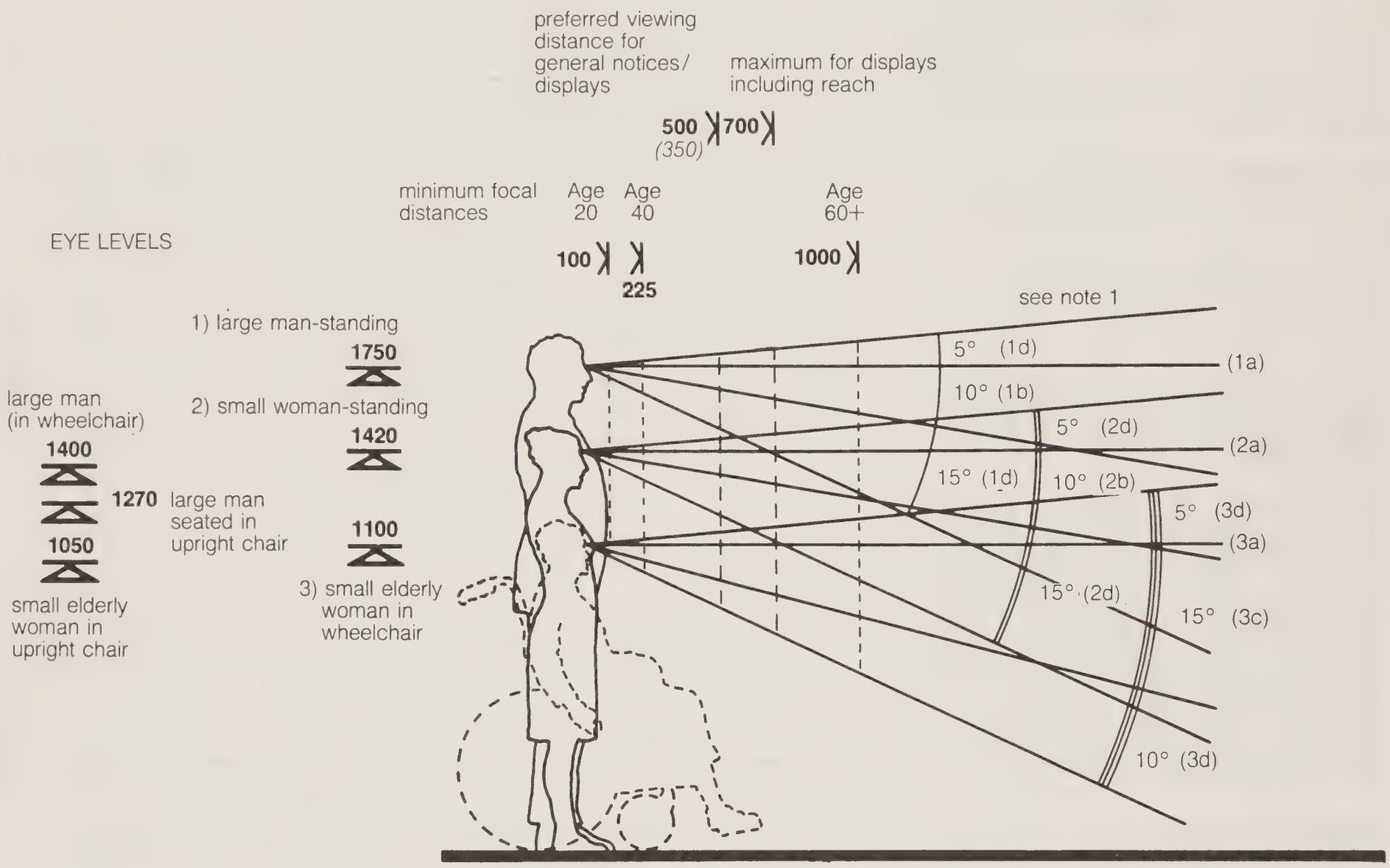


Fig.37

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Key to SIGHT LINES:
   1) large man - standing
   2) small woman - standing
   3) small elderly woman in wheelchair

   a) standard line of sight
   b) normal line of sight - standing
   c) normal line of sight - sitting
   d) limits of vision without eye/head movement

   e.g. 2b =small woman, normal sight line, standing.

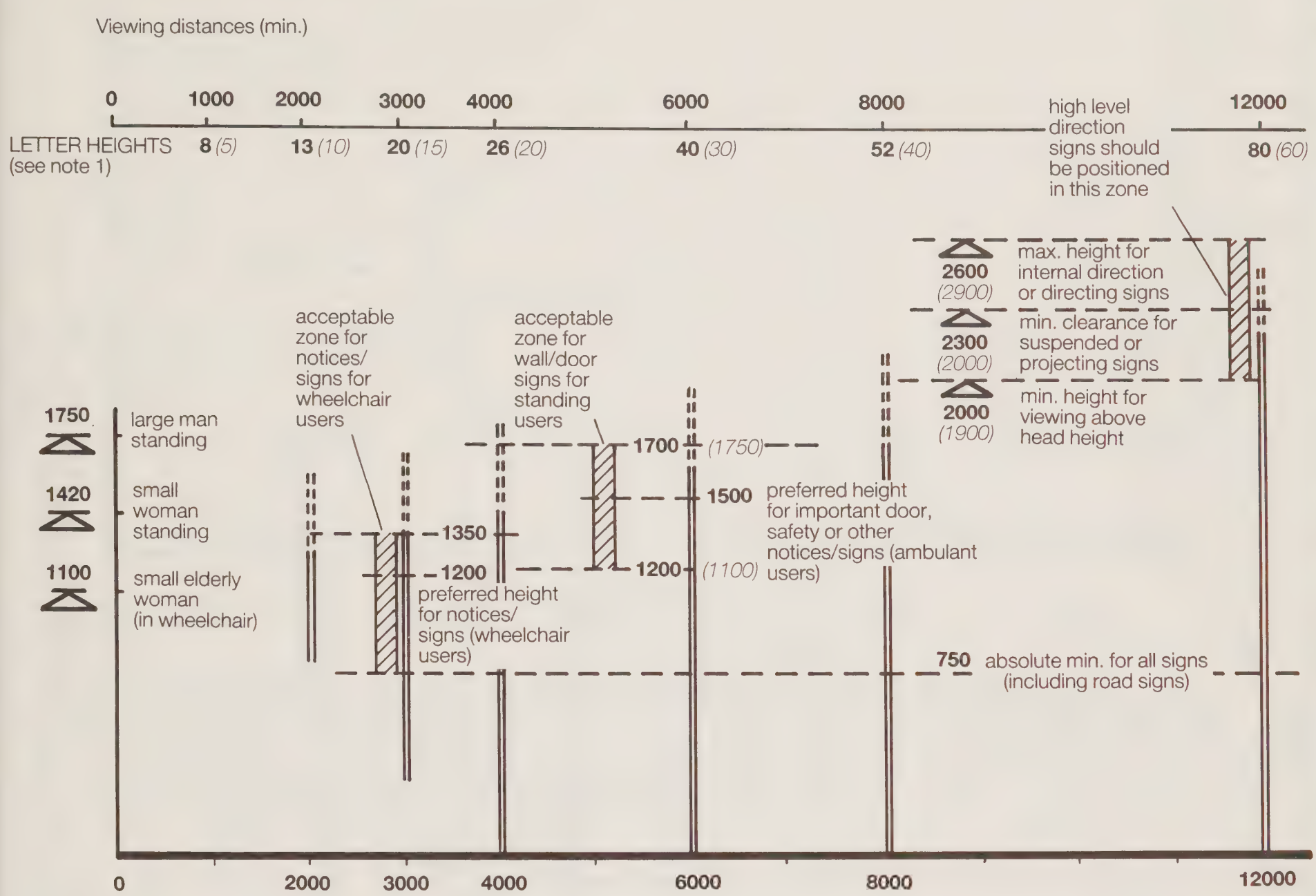
Activities:
Viewing signposts. See also SIGNPOSTING (1) EYE LEVELS/FOCAL DISTANCES and SIGNPOSTING (3) VIEWING DISTANCE/ WIDTH

DHSS **Ergonomic data bank:**
Component-user date sheet, not to scale.

Signposting 2

Viewing Distance/Height
(General locational recommendations)

Users:
Patients, staff, visitors



VIEWING DISTANCES (min.)
(Note: Vertical scale = 2·5x horizontal scale).

Viewing distances over 12M will require individual consideration. For general guidance, see notes below.

likely restricted limit for viewing signs/notices in individual rooms in health buildings suitable for secondary information only - 8m preferred for important notices/signs

likely maximum viewing distance for signs/notices within individual rooms in health buildings. Suspended or projecting signs should preferably be viewed at a distance of excess of 8m

hospital directory signs (ie. list of directions) are unlikely to be viewed by pedestrians at distances significantly greater than 12m

Fig.38

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

1. Letter heights refers to the minimum overall height of capital letters (or numeral). Bracketed figures refer to the preferred minimum height of lower case letter 'x' (ie. the norm for the main body of the lower case letter). 5mm increase in 'x' letter height is allowed for each 1m viewing distance (BS 5499).

2. Recommended 'X' heights related to viewing distances

Pedestrians	12-40M 60	important direction signs
	8-12M 60/40	
	up to 8M 40	
Persons in cars (or on motorcycle or bicycles)	100m (50mph) 90	
	80m (40mph) 90	
	60m (30mph) 90/60	
	60m (15mph) 60	

3. Design of letters - A sans serif design is preferred and should be available in both lower and upper case. The tall lower case and capital letters should be of the same height. Minimum overall 'X' height for signs/notices 5mm (8mm overall).

4. In certain circumstances traffic directional signs may be given on corridor floor or road surfaces.

5. For full details of recommended signs and signposting methods in health buildings see DHSS Health Signs Manual.

6. The recommendations shown above assume good colour contrast between letters and background and good lighting conditions.

7. Traffic signs - see Traffic Signs, Regulations and General Directions (1981) and Statutory Instrument No. 1536 (1975) Department of Transport.

8. See also, Health and Safety Executive - Safety Signs Regulations (1980), BS 5499 part 1 (1982), BS 5378 parts 1,2,3 and BS 5376, all related to aspects of fire and safety signs. The section referring to mandatory signs must be observed.

Activities:
Viewing signposts. See also Signposting (1) EYE LEVELS/FOCAL DISTANCES and SIGNPOSTING (2) VIEWING DISTANCE/ HEIGHT

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Signposting (3)

Viewing Distance/Width

(General locational recommendations)

Users:
Patients, staff, visitors

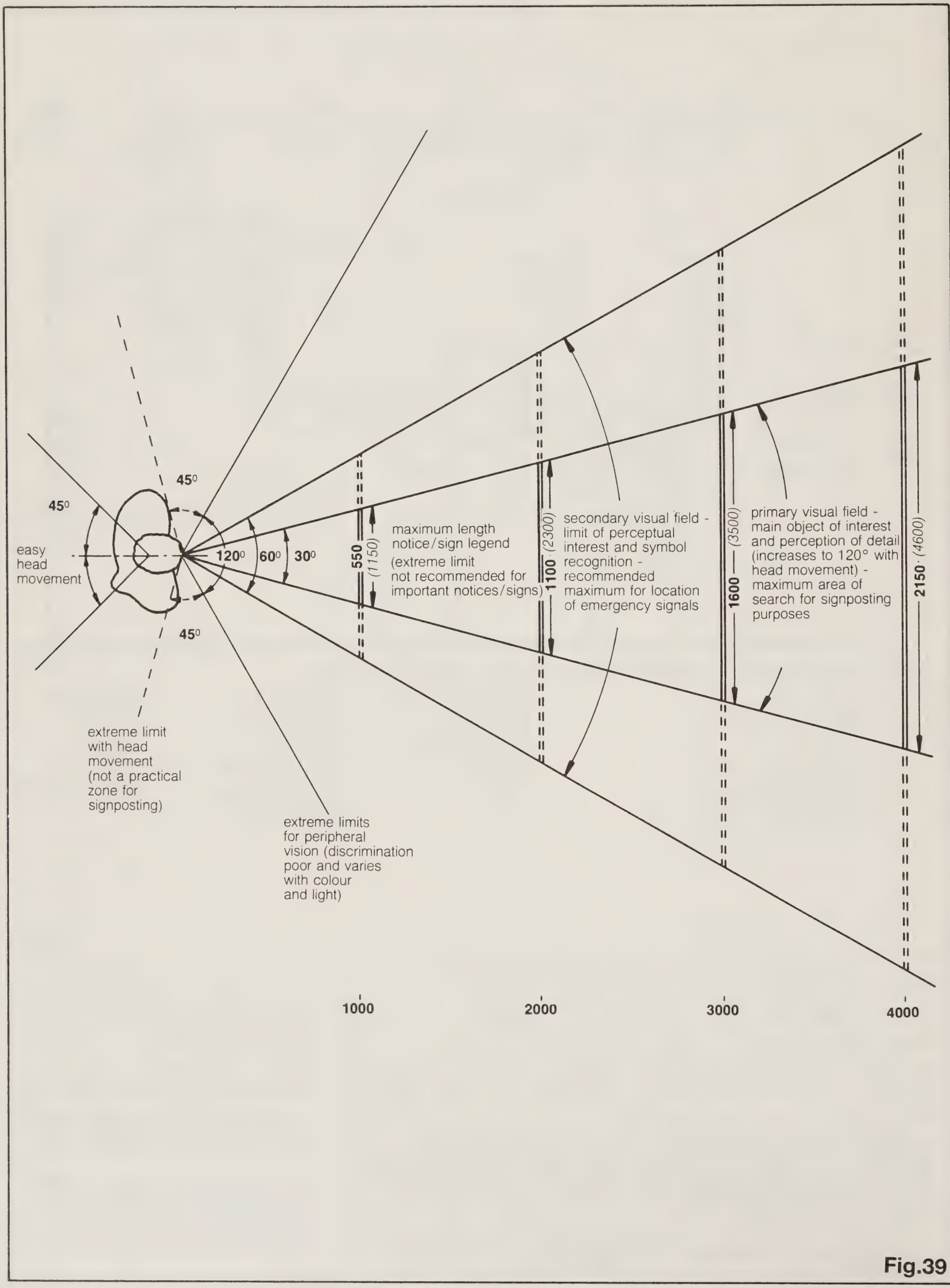


Fig.39

Activities:
use of WC by wheelchair users, also use at basin for hand washing, whilst seated on WC.
(see notes on Fig.43)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

WC 1

adult, hospital type

Users:
wheelchair users - independent & assisted.

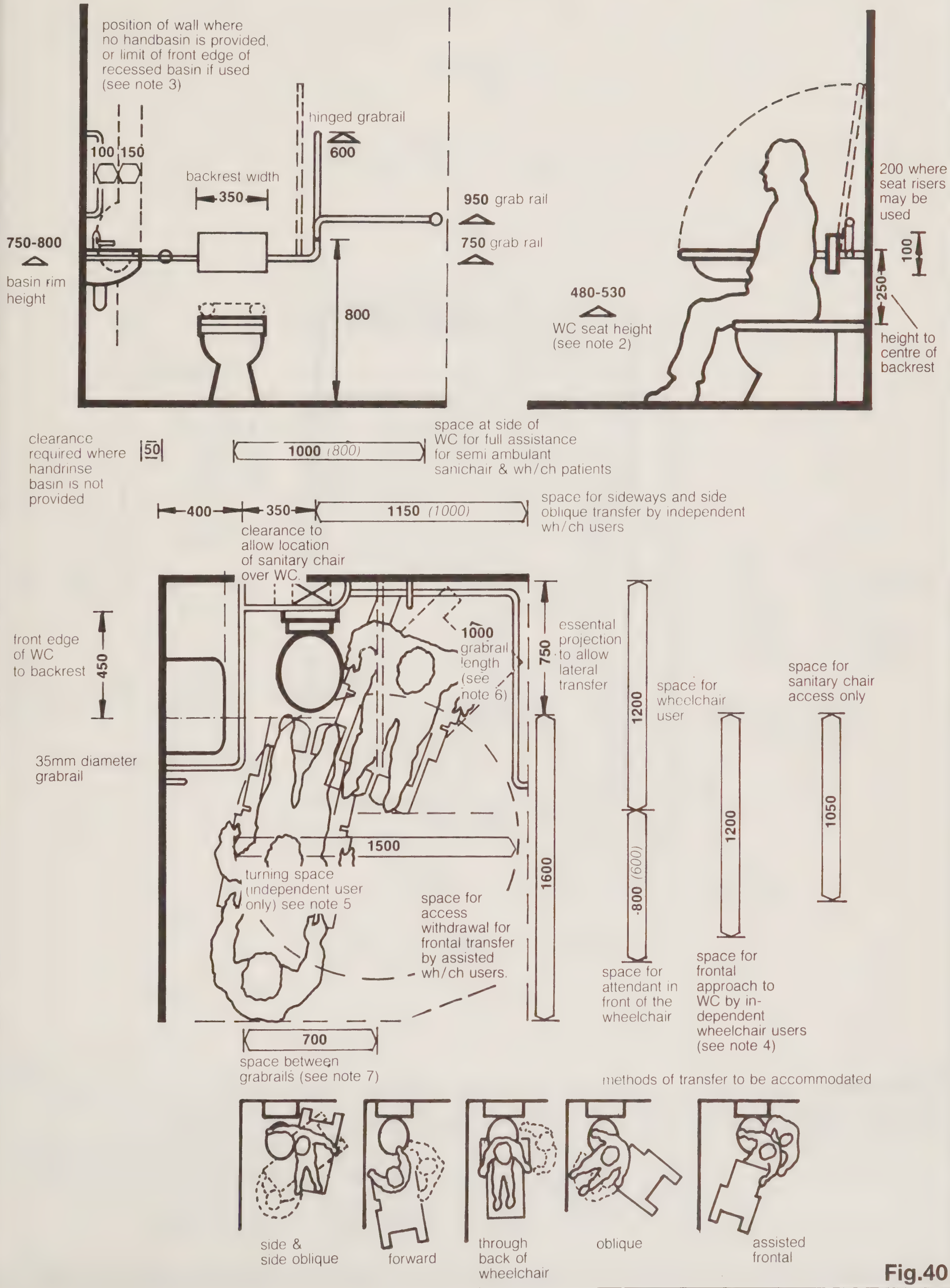


Fig.40

Facilities for independent and assisted wheelchair users

DHSS | **Ergonomic data bank:**
Activity space example layout, not to scale

Patient WC 2

with wash basin (wheelchair users)

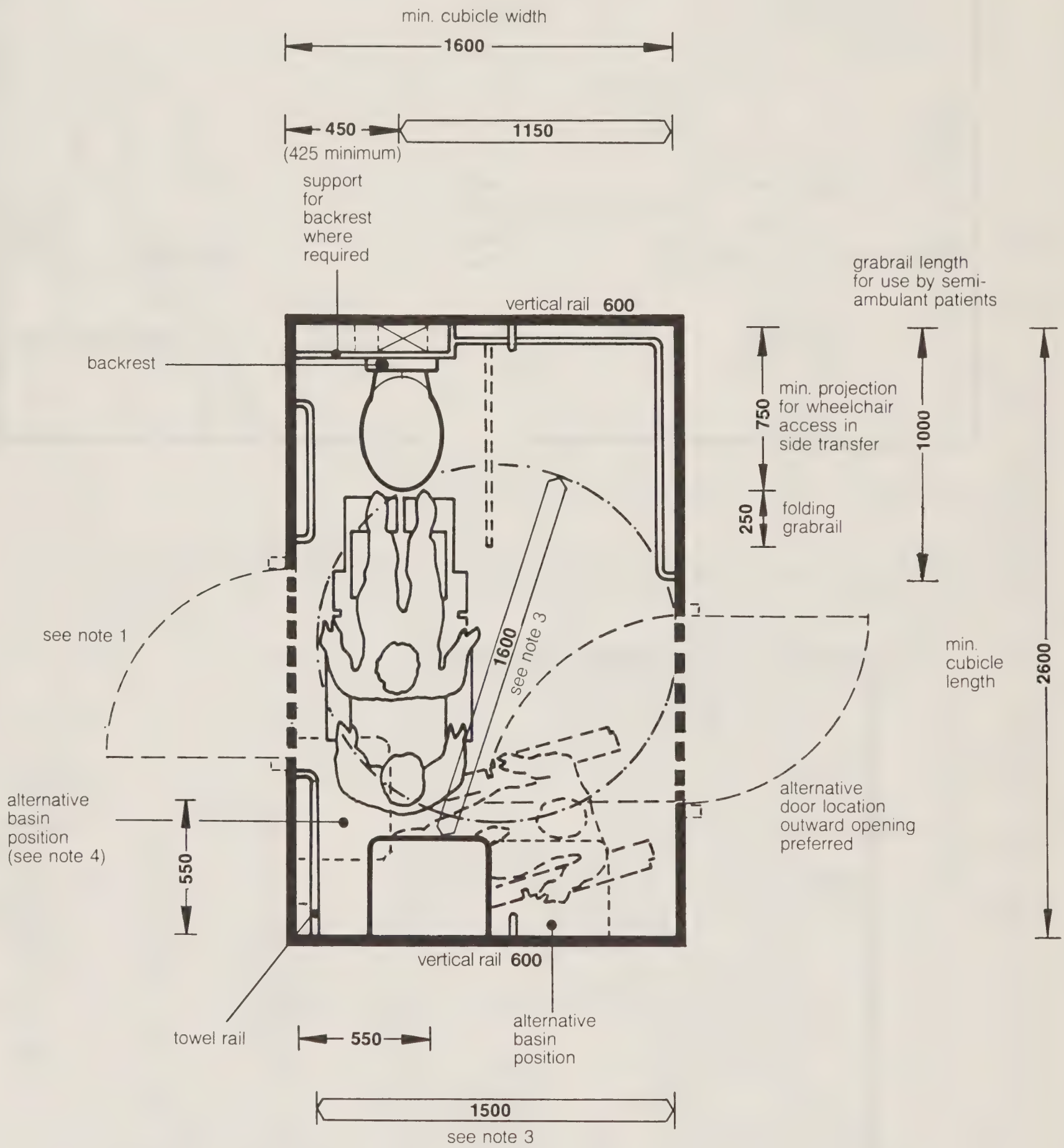


Fig.41

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Inward opening door not recommended in this position as it may be obstructed by patient at basin or WC.
2. Overall width of cubicle will not allow satisfactory location of basin and a door to be positioned on this wall.
3. 1600 - satisfactory angled approach to WC and basin possible for assisted wheelchair users.

1500 turning space for independent wheelchair users.

4. Alternative basin position - with basin in this position minimum space between basin and WC is 1200 resulting in cubicle length of 2700.

Facilities for independent and assisted wheelchair users.

DHSS. **Ergonomic data bank**
Activity Space example layout, not to scale.

WC 3

with handrinse basin
Wheelchair users (outpatients, visitors etc.)

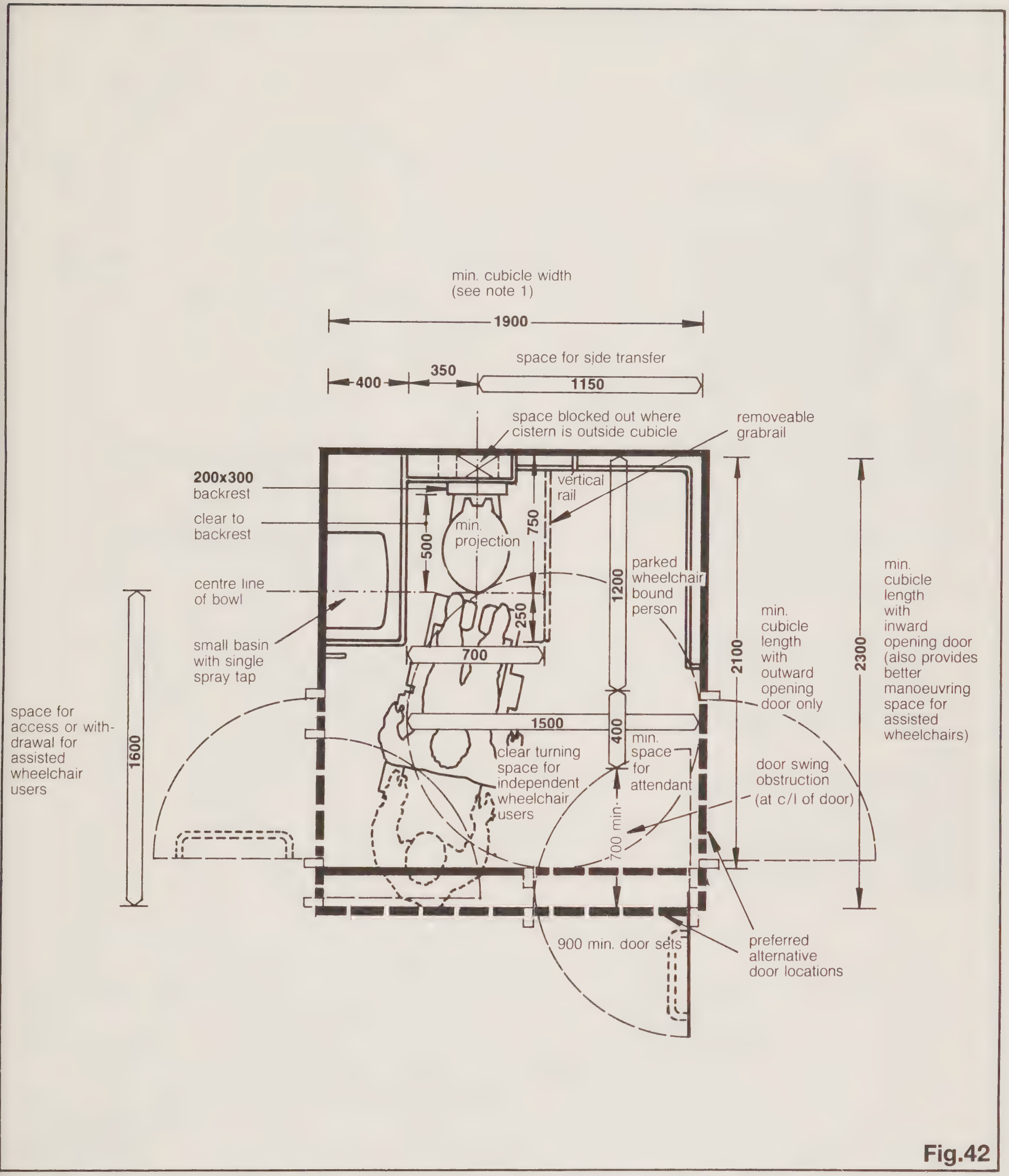


Fig.42

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. Cubicle width must be increased to accommodate larger basin sizes.
2. Where practicable doors should open outwards to give access to an occupied cubicle in case of an emergency. A grab rail is required on an outward opening door for the user to pull the door closed.

WC / Notes

Adult, hospital type

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. It is recommended that handrinse facilities accessible from the WC be provided in all wcs used by the wheelchair disabled.

2. For transfer from a wheelchair the wc seat must be higher than the normal seat height of approx 430. The satisfactory height for the transfer from a wheelchair is between 450-500mm. Removable wc seat risers can be used if they are stable, but many tend not to be so in practice. Air-rings can be used to increase seat height by approx 50mm plus provide good cushioning characteristics for those patients who need to spend long periods seated on the wc or are prone to injury due to sensory loss.

3. Handrinse basin dimensions vary 250-450. Basins which project less than 300 tend to be unsatisfactory in that they do not adequately contain splashing and basins over 350 deep require excessive sideways reach from wc seat, to taps etc. Recessed basins are generally not favoured because they tend to be too shallow, and restrict access and movement of hands by some disabled users.

4. This assumes that adequate manoeuvring space is available elsewhere in the room (see note 5 below).

5. A clear space of 1500 diameter, as part of a larger space which also contributes to the space available for wheelchair manoeuvring, is generally satisfactory for most independent wheelchair turning conditions.

6. A minimum grabrail length of 1000 will also allow the facility to be used safely by the semi-ambulant.

7. Ideally the space between grabrails should be less than 700 but they must be positioned symmetrically over the wc, and must not obstruct access to the wc by patients of wheeled sanitary chairs. The minimum to allow this is 700, but this dimension must not be exceeded as it will significantly reduce the effectiveness of the handrails as an aid to disabled users.

Activities
Dual access WC affording full assistance by two persons, including lateral transfer from a wheelchair positioned either side of the WC.
This facility is particularly useful for physically dependent eg. elderly.

DHSS **Ergonomic data bank**
Component-user data sheet not to scale

WC
Dual Access 1

Users
Assisted, independent and wheelchair users.

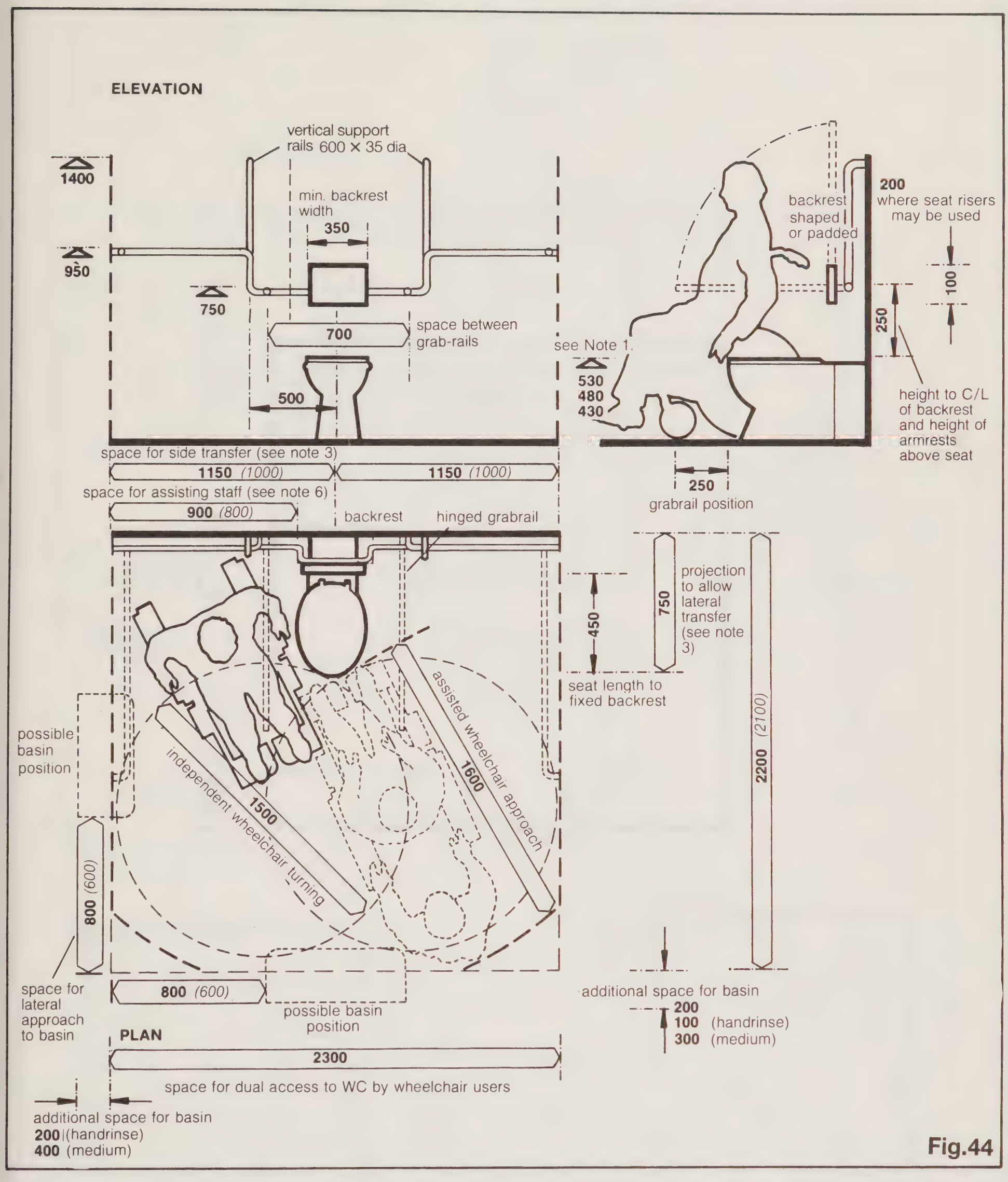


Fig.44

1350 (1300)

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. For satisfactory transfer from a wheelchair a higher seat height is required. Removable seat risers may be used if they are stable during use.

2. Shaped backrest — plan 200 min

3. Restricted space at side of WC will not allow angled approach - which is preferred by many wheelchair users.

4. Structure at back of WC pan may be extended to support backrest.

5. Additional space for assisted users achieved by using corners of space.

6. Space for assisting staff should preferably be clear of wall mounted grabrail as rail may restrict kneeling or bending postures.

Facilities for independent and assisted wheelchair users. Space is provided each side of WC to facilitate lateral transfer from right or left to/from a wheelchair. The space also allows full assistance by two persons standing either side of WC.

DHSS **Ergonomic data bank:**
Activity space layout data sheet, not to scale.

WC
Dual Access 2

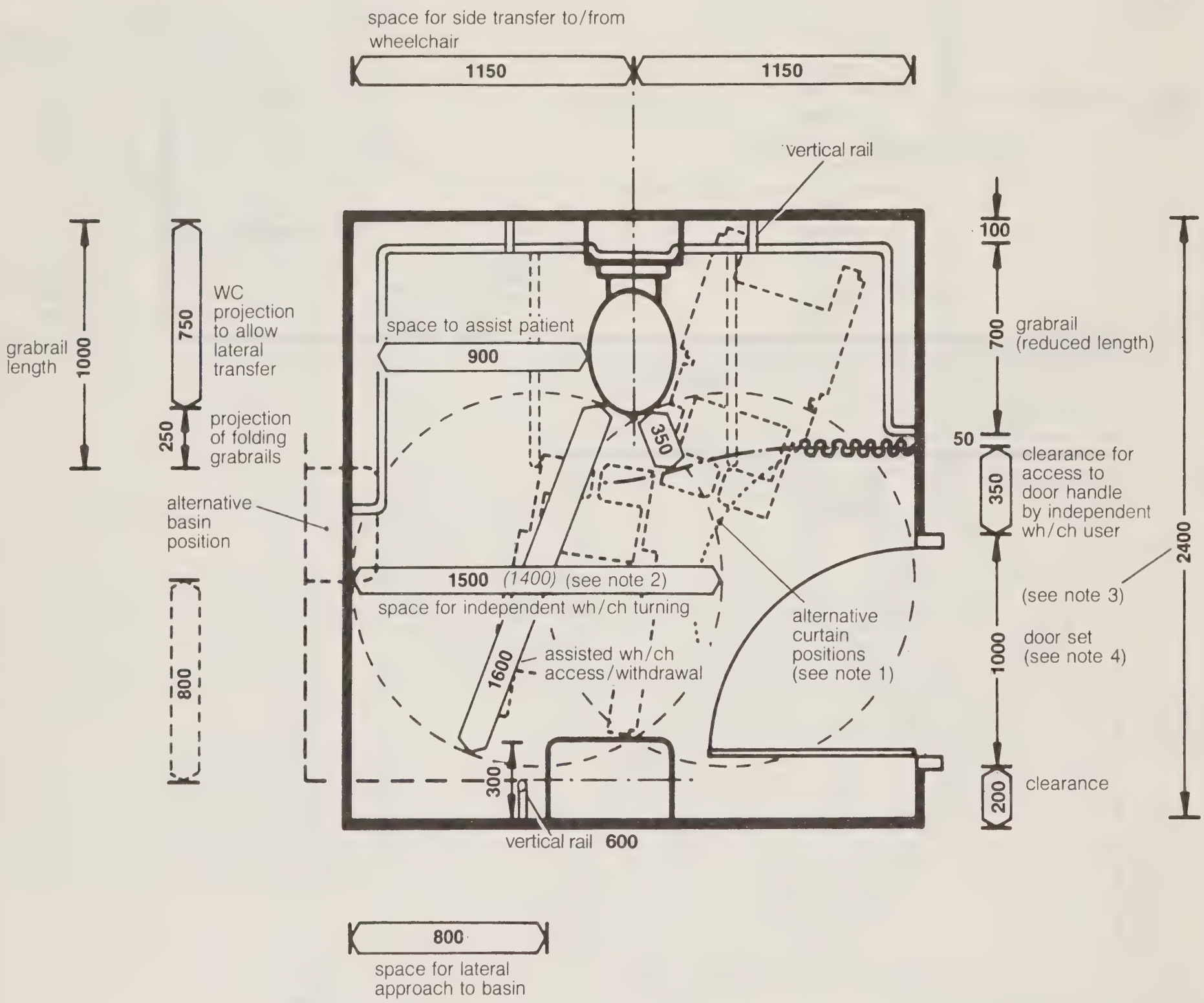


Fig.45

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. A curtain is shown to provide privacy for the patient using the WC when a member of staff enters or leaves the cubicle. The curtain should preferably be operable by independent patient or assisting staff.

2. Where wheelchair footrest (or pushing handles) can pass safely under cantilevered fittings, a turning circle of 1400 may be adequate.

3. Cubicle depth must be increased to 2500 when a medium basin for personal washing is required.

4. Outward opening of door required in the event of an emergency.

Activities:
WC and handrinse facilities for wheelchair users and semi-ambulant disabled (without assistance or with minimal assistance) see also Disabled Staff WC (2) and notes Fig.48.

Ergonomic Data Bank:
Activity space example layout, not to scale

Disabled Staff WC (1)

Unisex facility

Users:
Disabled male and female staff

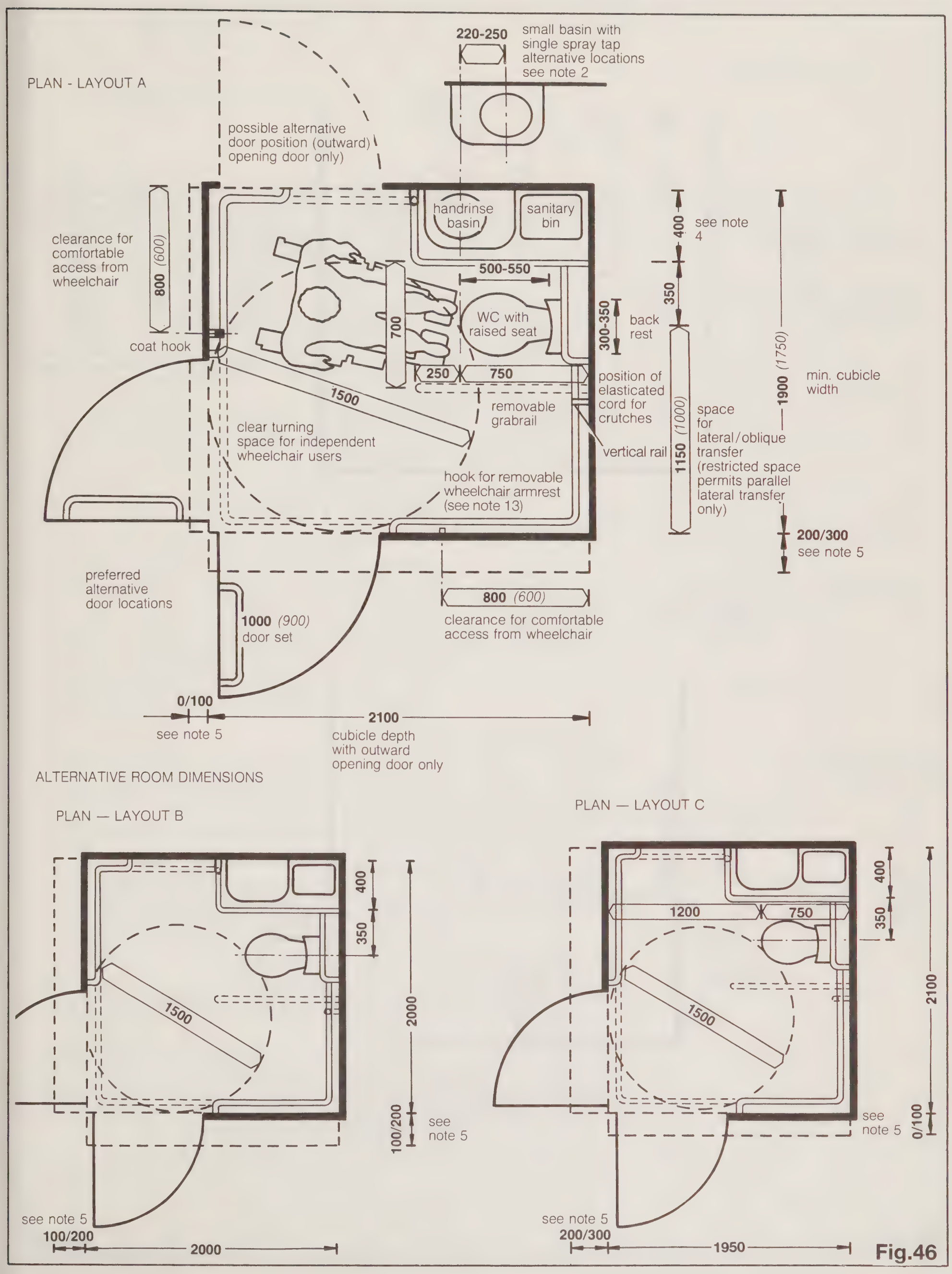


Fig.46

Activities:
WC and handrinse facilities for wheelchair users and semi-ambulant disabled (without assistance or with minimal assistance) see also Disabled Staff WC (1) and notes Fig.48.

DHSS **Ergonomic Data Bank:**
Activity space example layout, not to scale.

Disabled Staff WC (2)

Unisex facility

Users:
Disabled male and female staff

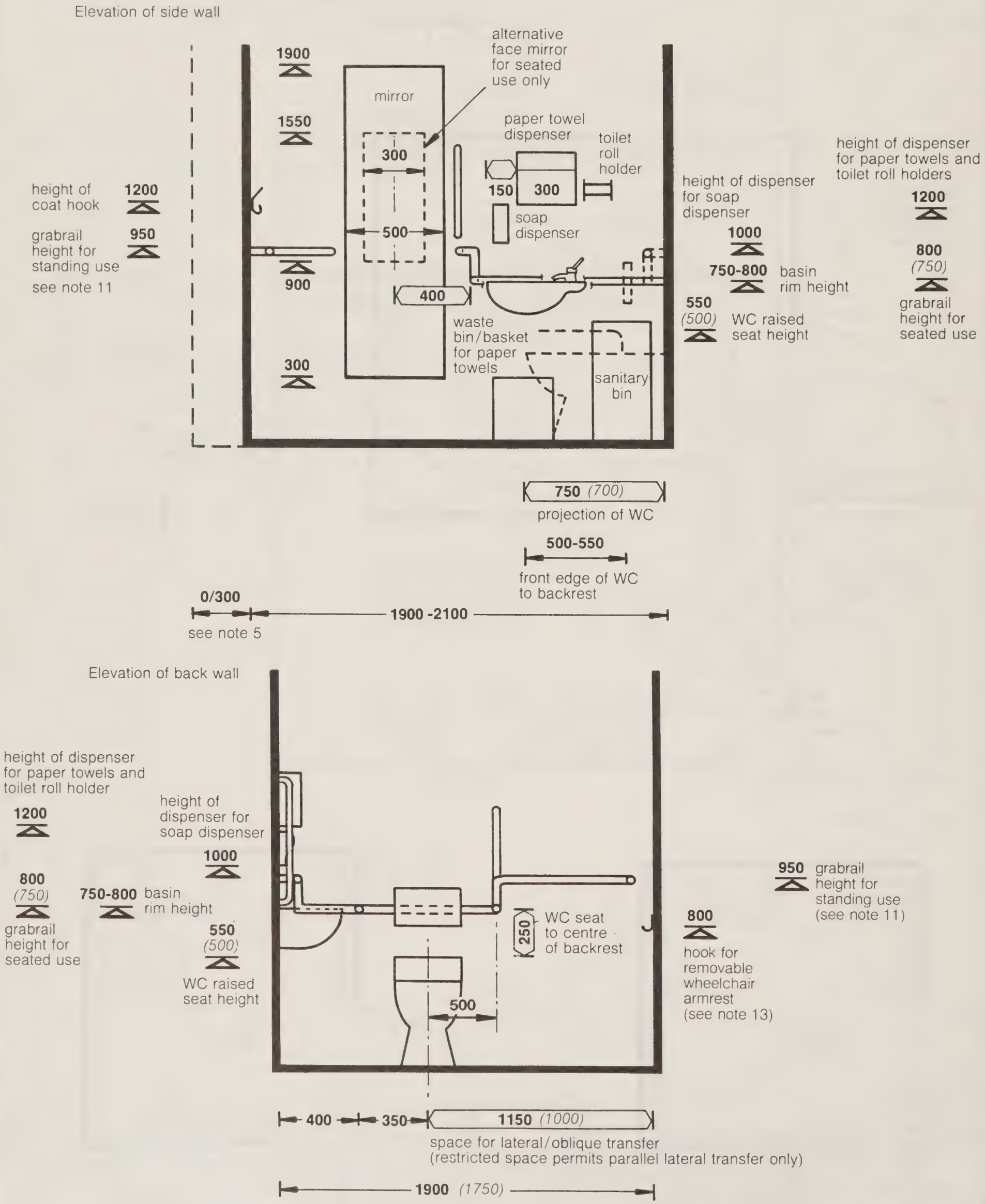


Fig.47

See Disabled Staff WC (1) and (2)

Disabled Staff WC Notes

2H27

Unisex facility

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

NOTES:

Provision of handrinse basin

1. BS 5810: 1979 recommends a narrower room, 1500. This however does not allow users to wash their hands conveniently whilst sitting on the WC and a significant proportion of users will be prohibited from doing so because of the excesssive forward reach necessary to operate the tap(s) and use the basin.
This provision is important for all users as it prevents soiling of wheelchairs, which may occur if the user has to transfer back to their wheelchair before washing their hands. The basin must be within easy reach of the user sitting on the WC as disabled people tend to have problems with balance and are more likely to fall if they have to reach too far forward.

2. To facilitate good access to the basin, the centre line of bowl should not be forward of front edge of WC seat. A bowl set back 200-250 (max) from front edge is preferable where tap/s position is on far side of basin

3. Handrinse basin projection varies 250-450. Basins which project less than 300 tend to be unsatisfactory in that they do not adequately contain splashing and basins over 350 deep require excessive sideways reach from WC seat to taps etc. Recessed basins are generally not favoured because they tend to be too shallow, and can restrict access and movement of hands by some disabled users.

4. Dimensions given are for free-standing handrinse basins. Reduced room width is possible for partially recessed facilities, where clearance between grabrail and wall can be reduced to 300-350. Medium basins will require 500 and larger basins (not recommended in this position) 600, increasing room width by 100-200 respectively.

Access doors

5. The leading edge of all doors must be in centre of room to allow access to door handle. In rooms of these sizes (2100 x 1900 and 2000 2000) the door must open outwards. If an inward opening door is required the room depth must be increased to clear the door swing as follows:

Layout A —
inwards opening door situated in side wall increase room width by 200 for 900 (min) doorset of 300 for 1000 (pref) doorset. For door in end wall increase depth by 100 for 1000 (pref) doorset, no increase is required for 900 (min) doorset.

Layout B —
inward opening doors increase room depth or width by 100 for 900 (min) doorset or 200 for 1000 (pref) doorset.

Layout C —
inward opening door situated in side wall increase width by 100 for 1000 (pref) doorset, no increase required for 900 (min) doorset. For door in end wall increase depth by 200 for 900 (min) doorset or 300 for 1000 (pref) doorset.

Wheelchair manoeuvring space

6. A clear space of 1500 diameter, as part of a larger space which also contributes to the space available for wheelchair manoeuvring (i.e. 1000 (900) or greater in width), is generally satisfactory for most independent wheelchair turning conditions.

Lateral transfer

7. The minimum clear projection from the back wall to the front edge of the WC is 750. This is to allow for lateral transfer from a wheelchair to the WC. Obstructions which may prevent users manoeuvring the wheelchair into position for lateral transfer, (ie bringing the wheelchair seat alongside the WC seat) must be avoided. It is therefore suggested that the cistern is high level or concealed; also to avoid conflict with wheelchair push handles that the wall grabrail is 950 high. Similarly a flushing handle for a concealed cistern should not be positioned in the zone 850-950 above floor level in the back wall.
A width of 1150 (min) from the centre of the WC to the side wall is required to allow oblique lateral transfer which is necessary and preferred by most independent users.

Frontal transfer

8. Frontal transfer from wheelchair to WC needs a minimum space of 1200 in front of the WC, this must be associated with convenient and adequate adjacent manoeuvring space.. Oblique frontal transfer must have a space allowance of 1100 at the side of the WC and a space of at least 900 in front of the WC. Users using the frontal approach may need to use the grabrails situated on either side of the WC.

WC seat height

9. For safe lateral (ie side or oblique, or occasionally frontal or reverse) transfer the WC seat must be at the same level as the wheelchair seat, including any cushioning. A standard WC seat (height approx 430) must therefore be modified in some way to achieve this. Removable seat raisers are notoriously unstable and potentially hazardous, therefore a fixed seat riser is recommended. WC seat must be at least 500 above floor level, but where deep cushions are predominantly used or are 'standard' a WC seat height of 550 is preferable. There should be no lid over the WC seat as this will impede transfer.

Grabrails

10. Grabrails on either side of the WC (one must be removable - ie drop-down or horizontal swing) should ideally be at a height of 800 (750 min). The grabrails should have a diameter of 40-45 (32 abs. min.) and project 250 beyond the front edge of WC to give the user the leverage they need to stand up.

11. Semi-ambulant disabled need grabrails around all walls of room. For standing use a height of 950 is recommended as this is less likely to impede wheelchair turning or positioning (wheelchair push handled are at 900 above floor level).

Backrest to WC

12. A backrest 200-300 high x 300-350 wide should be positioned 550 (500) from the front edge of the WC seat, at a height of 250 from the WC seat to the centre line of the back rest, to provide users with lumbar support.

Other amenities

13. A conveniently placed hook (height 800) should be provided to hold removable wheelchair armrest during transfer. (If they fall on the floor they can be difficult or impossible for independent users to retrieve).
An elasticated cord and clip ('bunje' cord) device should be provided to secure crutches near WC when not in use. Walking sticks can hang on grabrail whilst WC and basin are used.

14. All fixtures and controls should be within comfortable reach. ie accessible and openable without excessive stretching or bending.

Planning of room layouts

15. There is no evidence that right or left handed layouts are more satisfactory or more favoured. However where more than one facility can be made available, it is suggested that mirrored unisex facilities would best meet the needs of individual preferences.

16. To comply with Building Regulations, WC components must have at least the dimensions, equipment and fittings shown in Building Regulations part M, diagram 10.

Fig.48

Activities
Use of WC, with side access space for assistant

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

WC
adult

Users
independent, semi-ambulant and assisted ambulant
(also sanitary chair access)

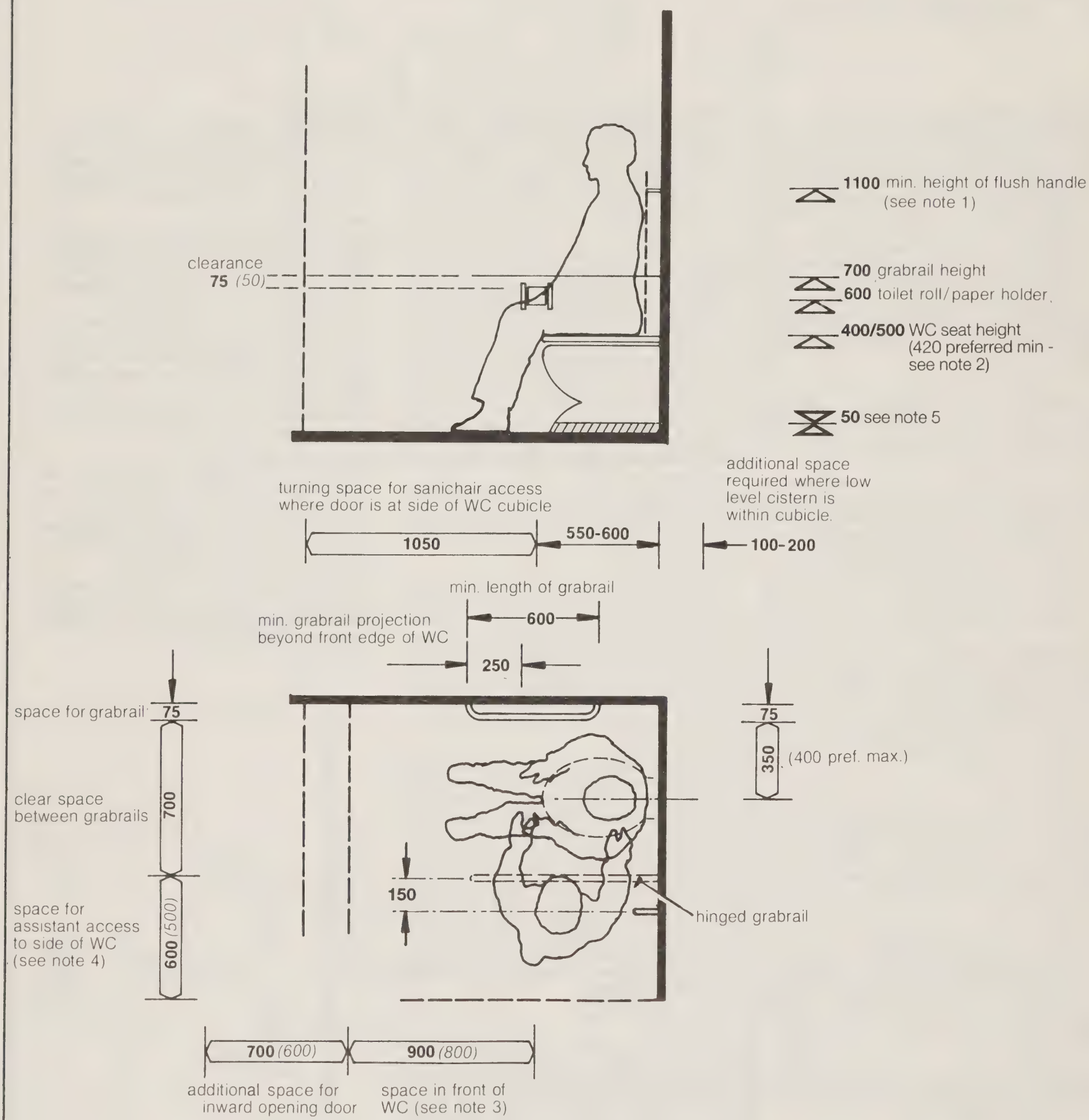


Fig.49

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Lower flush handles will obstruct satisfactory sanitary chair location over WC.

2. Higher WC seats will seriously obstruct sanitary chair access over WC.

3. 900 will allow for a grabrail for standing not to be located on the front wall. This is a desirable facility for independent and assisted users. 1200 (1000) is desirable for full unimpeded assistance from directly in front of WC but this is not seen as essential in this wider cubicle.

4. This allows side access when hinged grabrail is in raised position. This is desirable where full assisted use is frequent.

5. A raised seat is not recommended to achieve the overall height of 500mm, instead the floor should be raised by 50mm.

Activities
Showering, including undressing/dressing, drying and transferring

DHSS | **Ergonomic data bank**
Component-data sheet, not to scale

Shower

Users
Partially capable patients with assistance and wheelchair patients.

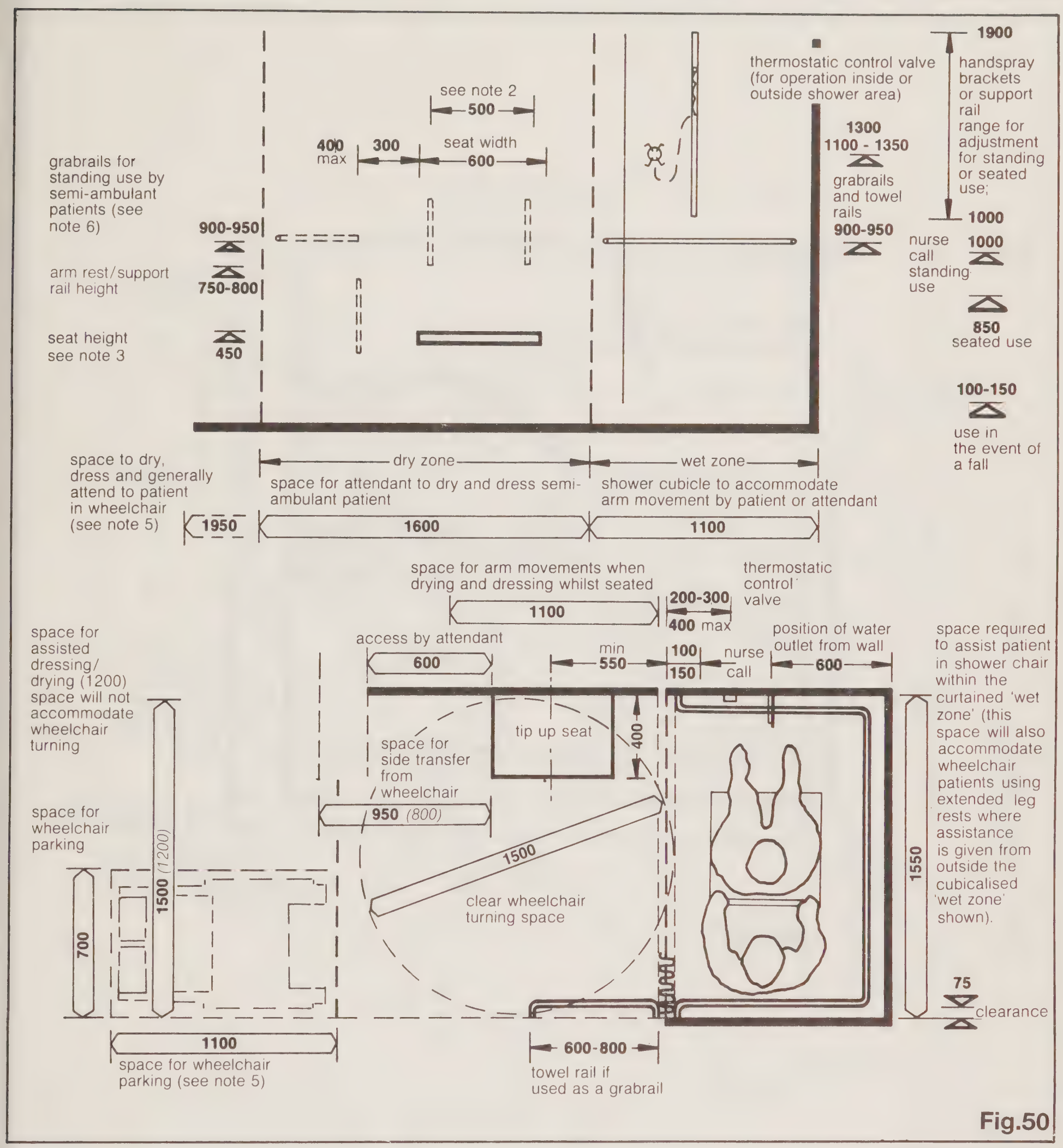


Fig.50

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

1. The flexible hose outlet should be positioned so as not to impede clear access to the control valve.

2. Seated patients should preferably have support rails/rim (tip-up type) usable from tip-up seat. The rails/rests should be 300 above the supporting seat height.

3. A higher seat height of 500 is preferred where the facility is frequently used by wheelchair patients who normally use 50mm deep (or deeper) seat cushions.

4. The position of the user space for drying/dressing (dry zone) can be varied in relation to shower cubicle (wet zone) provided that the individual activity requirements (patient transfer, wheelchair turning, drying and dressing) are fully maintained.

5. Where the space allowed for drying/dressing is the minimum recommended (ie 1600 x 1500) it is preferred that the additional space either inside or conveniently outside the room be available to park the transporting wheelchair.

6. It is preferable that whenever possible and accessible a continuous handrail support system surrounding the ambulant user areas be available to semi-ambulant patients. This will generally not be possible, however, immediately behind the tip-up seat where a grabrail would impede use of the seat.

Activities:
Combined WC and shower facility for use by wheelchair patients. The facility may also be used as a bidet for perineal cleansing using shower handset (see note 1).

Assistance may be given with transfer or with bathing activities by one, two, or more persons.

WC/Shower/(Bidet) Wash Room (1)

with transfer seat

Users:
Independent and assisted wheelchair users

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale

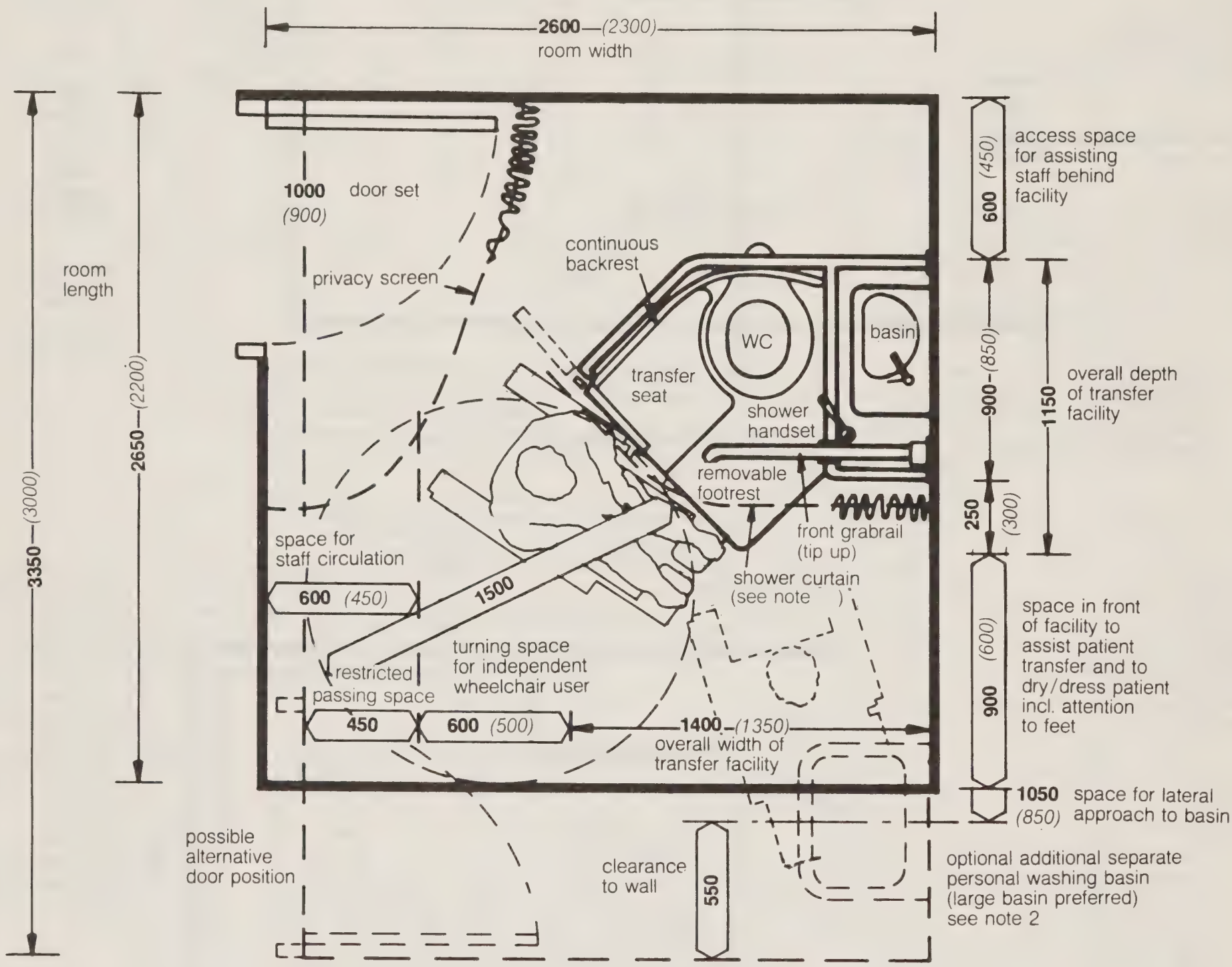


Fig.51

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Some soiling and consequent contamination of the shower handset can occur if the facility is used as a bidet.

2. The integral handrinse basin is too small for personal washing (ie. using the basin). The fitting of a separate larger basin is therefore recommended for this purpose. This can also be used by assisting staff.

3. The shower curtain is drawn after transfer from the wheelchair to protect wheelchair, clothing, towel, etc. from shower spray. This should preferably be separate from the privacy screen which is to facilitate staff access/egress during use of the room by a patient.

4. See also WC/Shower with transfer seat (1) to (5) component - user data sheets, and alternative layouts (2).

Activities:

Combined WC and shower facility for use by wheelchair users. The facility may be used as a bidet for perineal cleansing using shower handset (see note 1).

Assistance may be given with transfer or with bathing activities by one, two or more persons.

WC/Shower/(Bidet) Wash Room (2)

with transfer seat

ALTERNATIVE LAYOUTS

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Users:
Independent and assisted wheelchair users

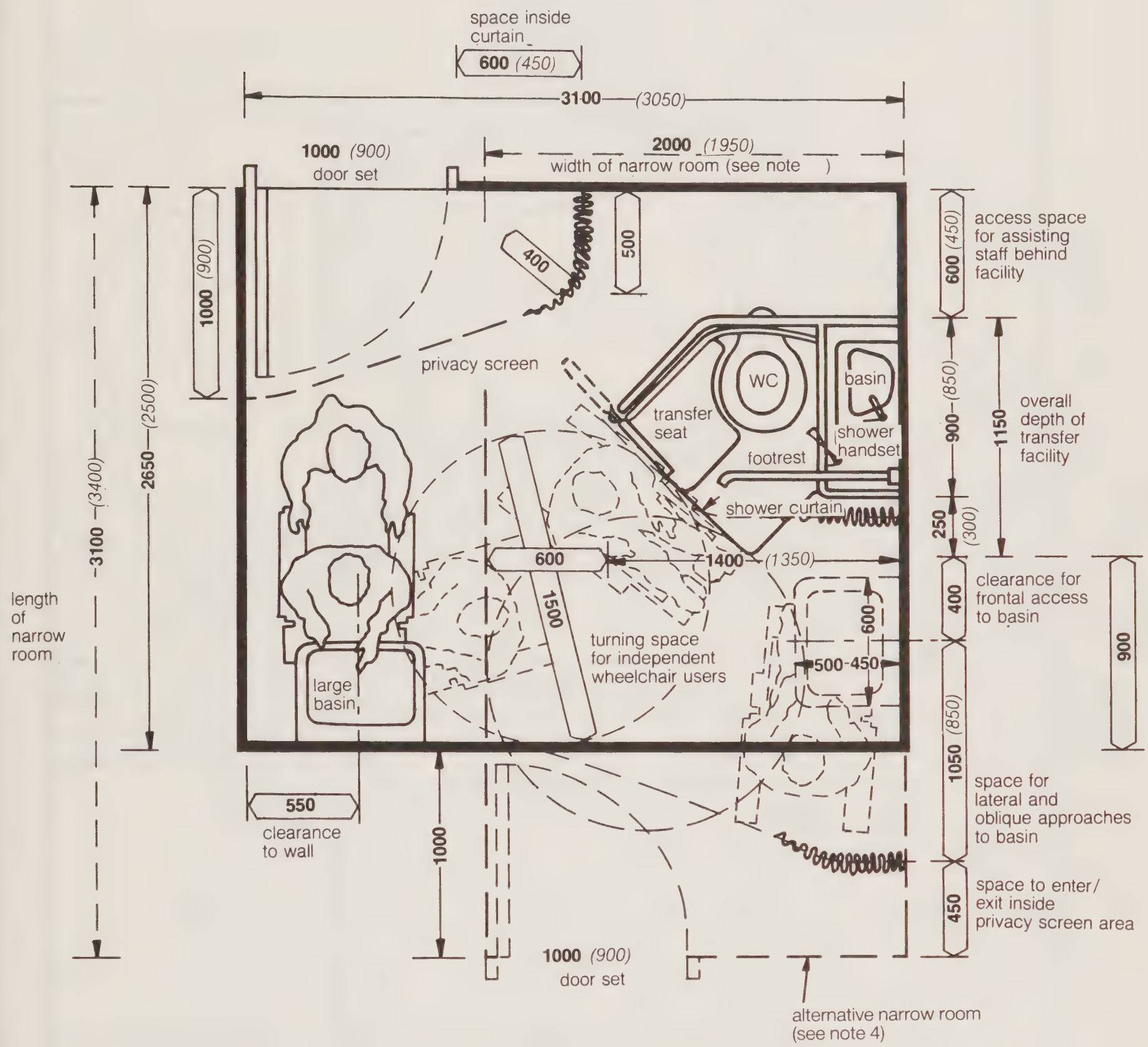


Fig.52

1300 *(1350)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1 Some soiling and consequent contamination of the shower handset can occur if the facility is used as a bidet.

2. Both plans show alternative large basin for occasional personal washing. The integral hadnrinse basin is too small for more general activities. This additional facility is also convenient for use by assisting staff.

3. The shower curtain is drawn after transfer from the wheelchair to protect wheelchair, clothing, towel, etc. from shower spray. This should preferably be separate from the privacy screen which is to facilitate staff access/egress during use of the room by a patient.

4. In narrow room, wheelchair parked for transfer must be moved to allow assisting staff to gain access behind the facility - eg. to assist with transfer.

5. See also WC/shower with transfer seat (1) to (5) component-user data sheets, and wash room layout (1).

WC/Shower (1)

with transfer seat

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Users:
Independent or
assisted wheelchair users

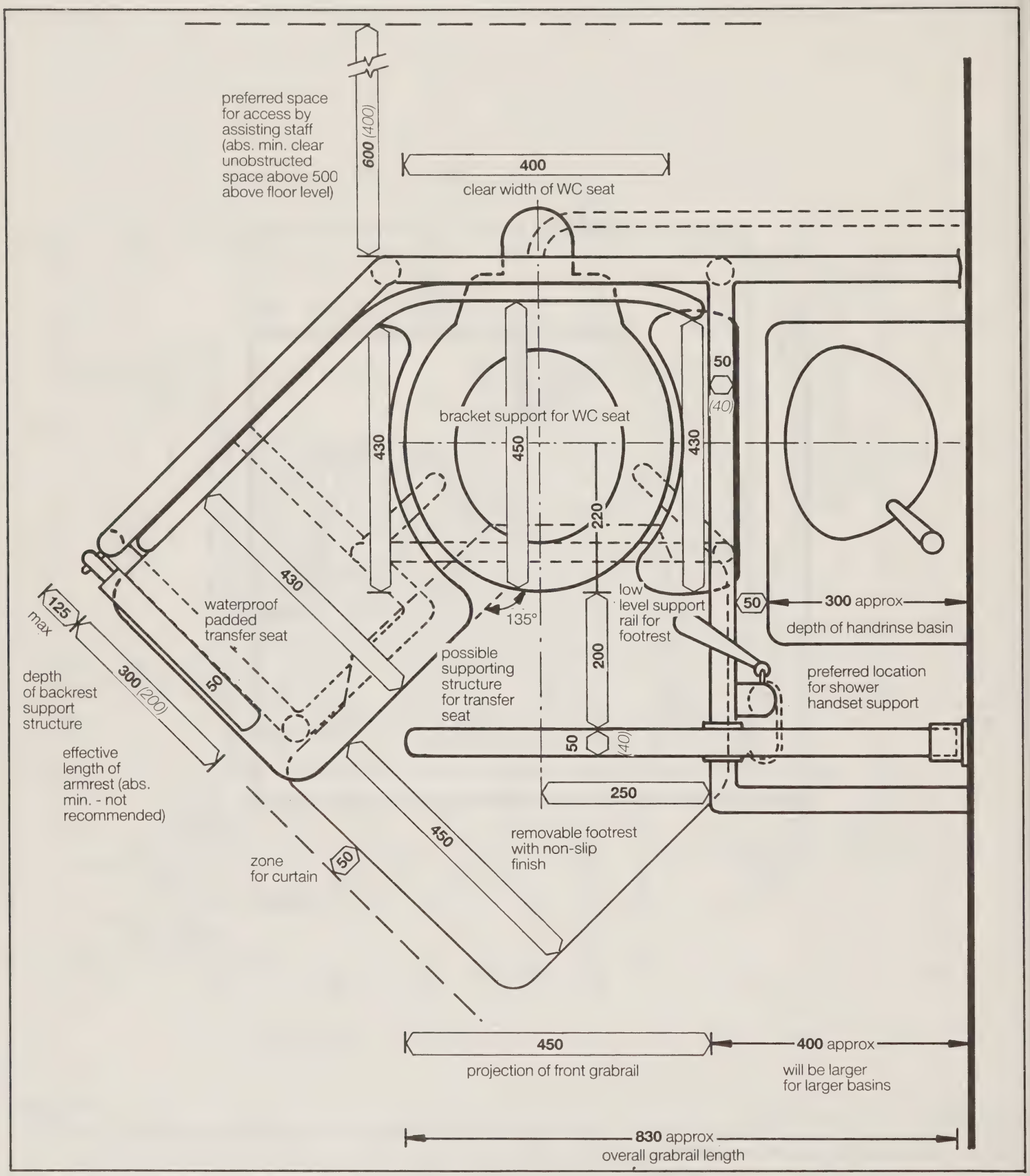


Fig.53

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

WC/Shower (2)

with transfer seat

Users:
Independent or
assisted wheelchair users

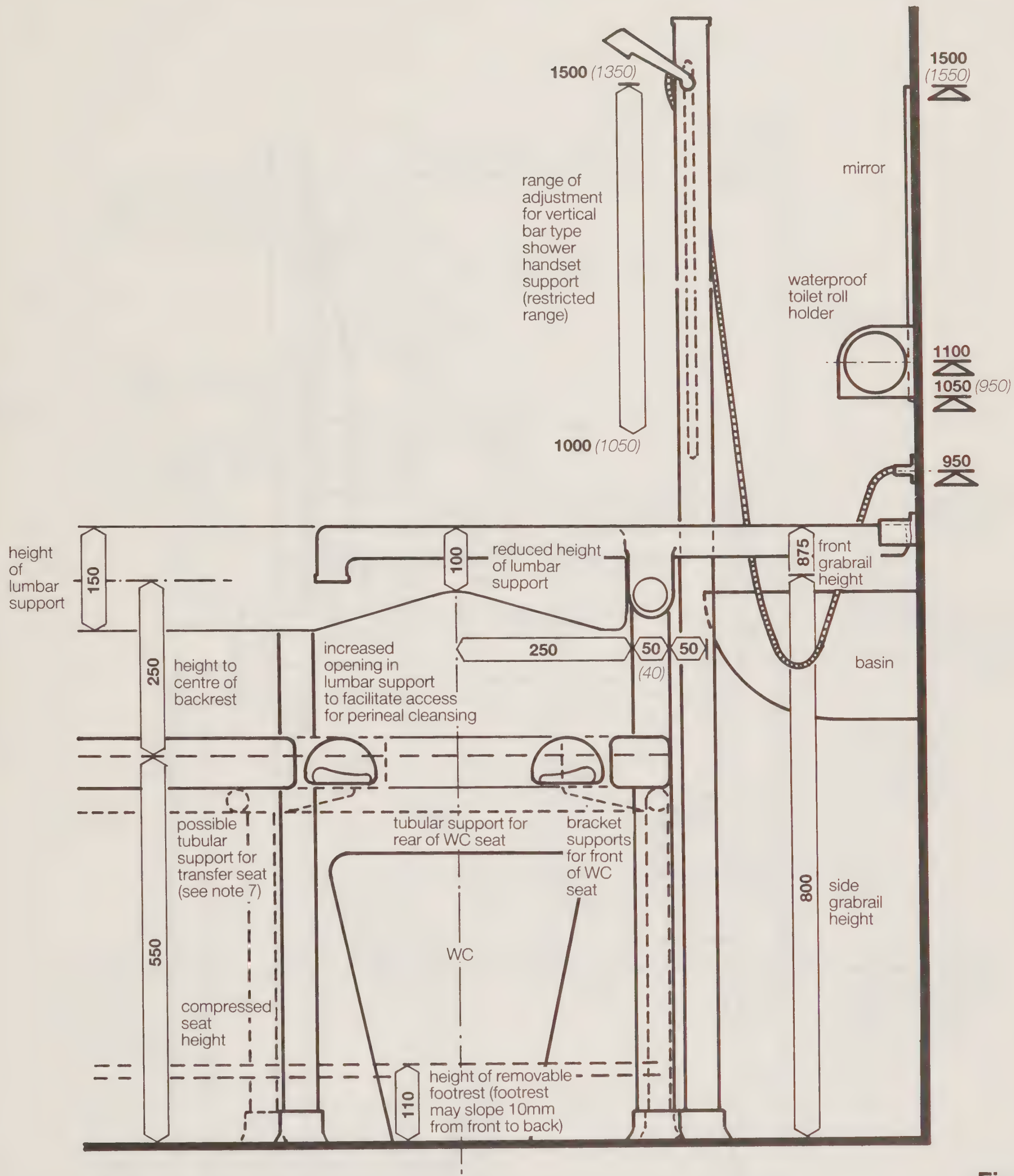


Fig.54

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

WC/Shower (3)

with transfer seat

Users:
Independent or
assisted wheelchair users

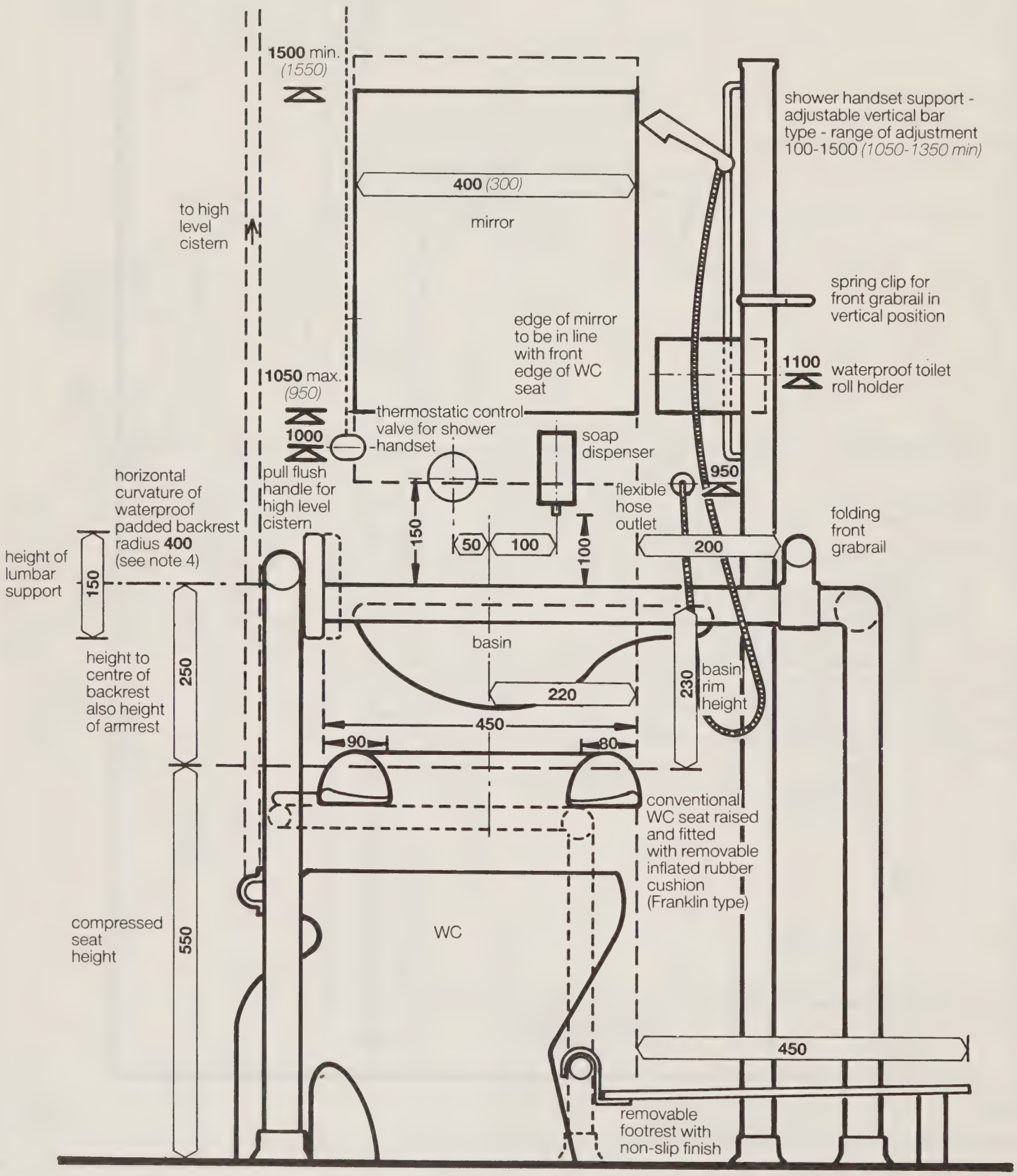


Fig.55

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

WC/Shower (4)

with transfer seat

Users:
Independent or
assisted wheelchair users

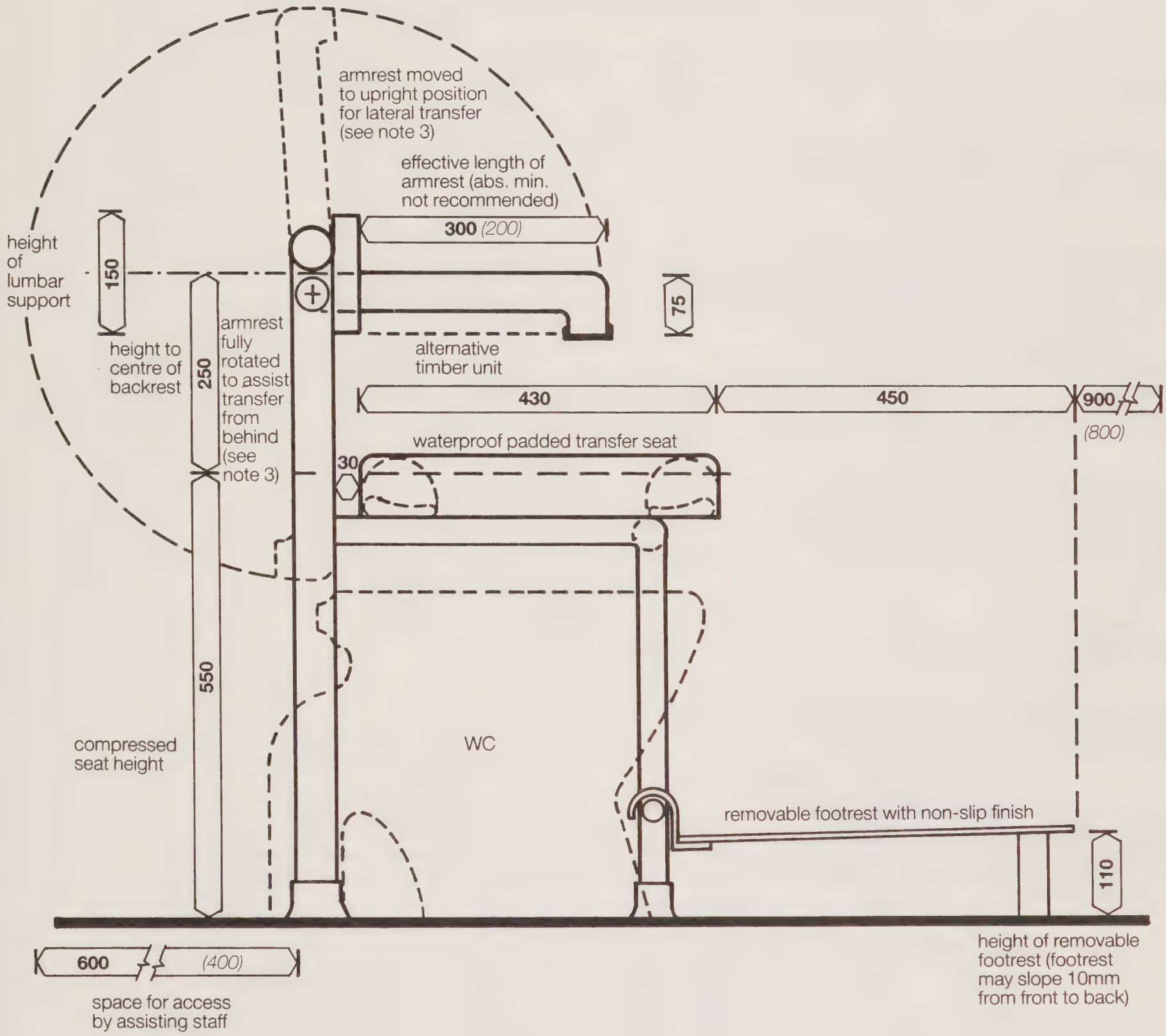


Fig.56

WC/Shower with transfer seat Notes

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

See WC/Shower with transfer seat 1-4 data sheets.

General Design Notes

1. The compressed seat height of 550 allows for convenient transfer from a standard wheelchair (height 480) fitted with a deep (100mm) cushion.

2. Whilst armrests must be long enough to provide good lateral support, excessive length will make folding more difficult and less manageable, especially by debilitated users.

3. The outer armrests must be folded to a vertical position when lateral transfer to or from the wheelchair. When transfer is assisted by a person standing behind the wheelchair/transfer seat, armrest must be fully rotated beyond the vertical stop to eliminate any obstruction. This should preferably be facilitated by a simple spring or similar device operable by the assistant only.

Alternatively the armrest could be removable, but this may be less satisfactory in use.

4. Cushioning characteristics are very critical for the backrest and especially the transfer seat. A high level of "softness" must be obtained, but neither cushioning material or waterproof covering must pucker during stresses imposed by sliding horizontal transfer by patients.

5. The design must be completely free of any sharp edges which could injure patients who suffer from sensory loss.

6. Backrest support structure should be as narrow as possible to provide good access to patient when assisting with transfer or use of the facilities.

7. The structure shown is diagramatic but may be constructed of any suitable material eg. stainless steel, hardwood, etc. The seat structure shown is based on a possible tubular steel construction which is used to identify critical user requirements.

Fig.57

Facilities for a patient who may be in a wheelchair or sanitary chair needing the assistance of staff to shower, use a wash-basin and use WC.

DHSS **Ergonomic data bank**
Activity space example layout, not to scale

Shower 1
(wheelchair/assisted patients)

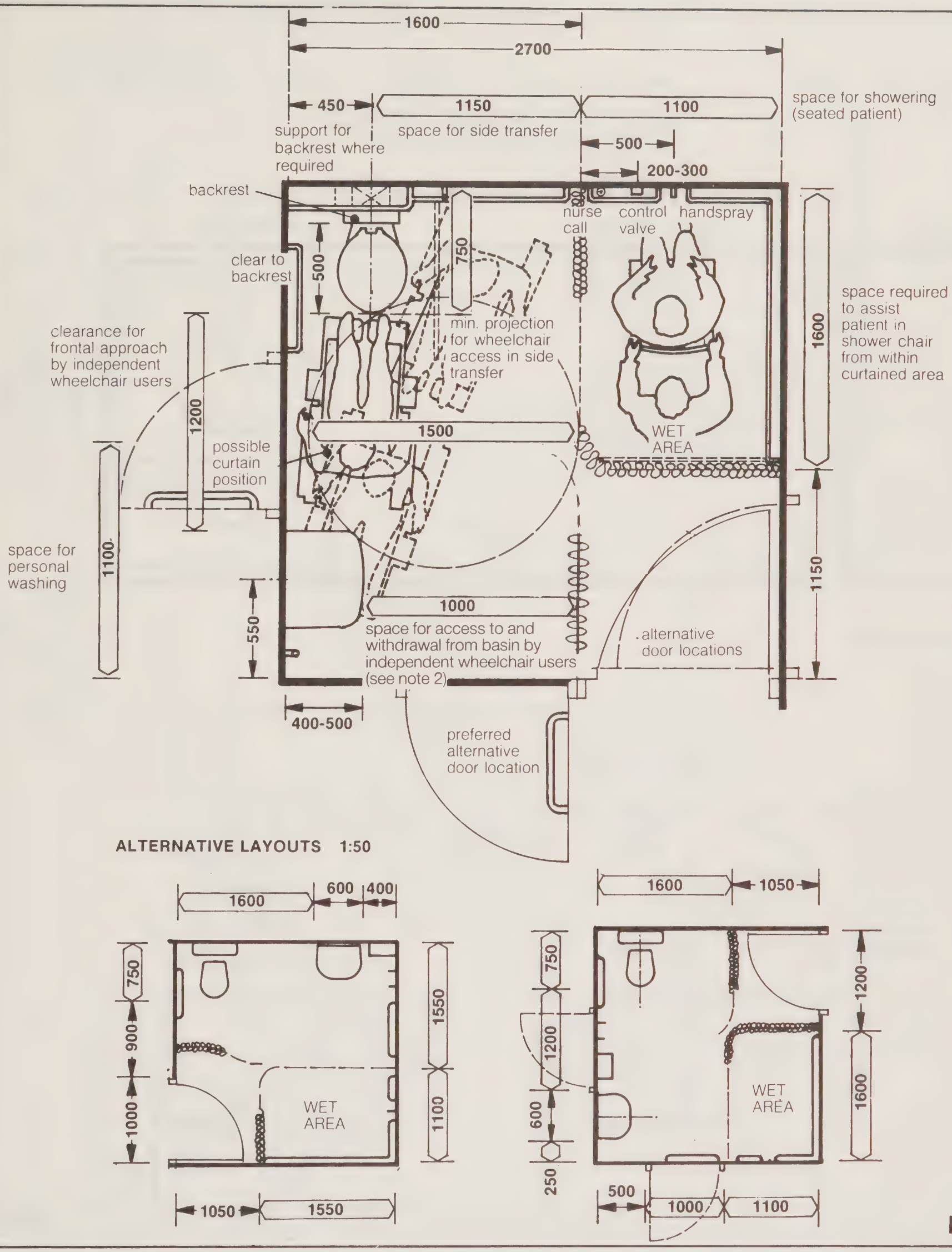


Fig.58

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. To safeguard the privacy of patients when changing or using shower, it is desirable that access doors be adequately screened, and that these should not impede access or egress by assisting staff.
2. A space of 1200 is preferable to accommodate assisted wheelchair manoeuvres in front of basin.
3. The nurse call should be operable at 900-1000 above floor level, also near floor level (50-100) by a patient who has fallen.
4. Inward opening doors (in unscreened positions) are possible, but cannot be recommended as wheelchair movement becomes restricted; also door swing may be obstructed by patient using basin or WC preventing entry by assisting staff.

Facilities for a patient who may be in a wheelchair or sanitary chair needing the assistance of staff to shower and use a washbasin.

DHSS · **Ergonomic data bank**
Activity Space example layout, not to scale.

Shower 2
(wheelchair/assisted patient)

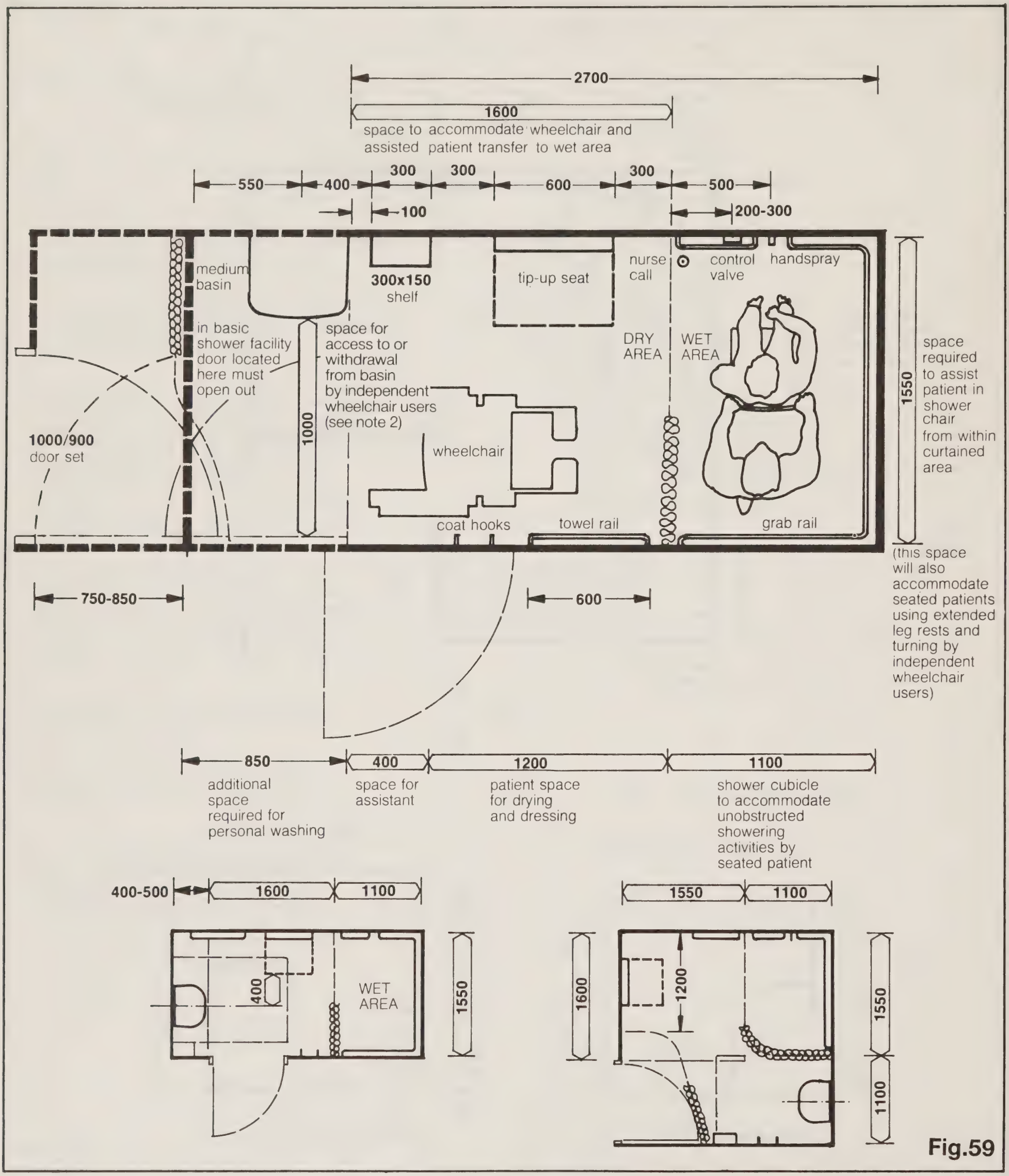


Fig.59

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. To safeguard the privacy of patients when changing or using shower, it is desirable that access doors be adequately screened, and that these should not impede access or egress by assisting staff.

2. A space of 1200 is preferable to accommodate assisted wheelchair manoeuvres in front of basin.

3. The nurse call should be operable at 900-1000 above floor level, also near floor level (50-100) by a patient who has fallen.

4. Inward opening doors (in unscreened positions) are possible, but cannot be recommended as wheelchair movement becomes restricted; also door swing may be obstructed by patient using basin preventing entry by assisting staff.

Activities:
Personal washing (hands, forearms, face etc.)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Basin

Medium

Users:

Independent and assisted wheelchair users (also seated users)

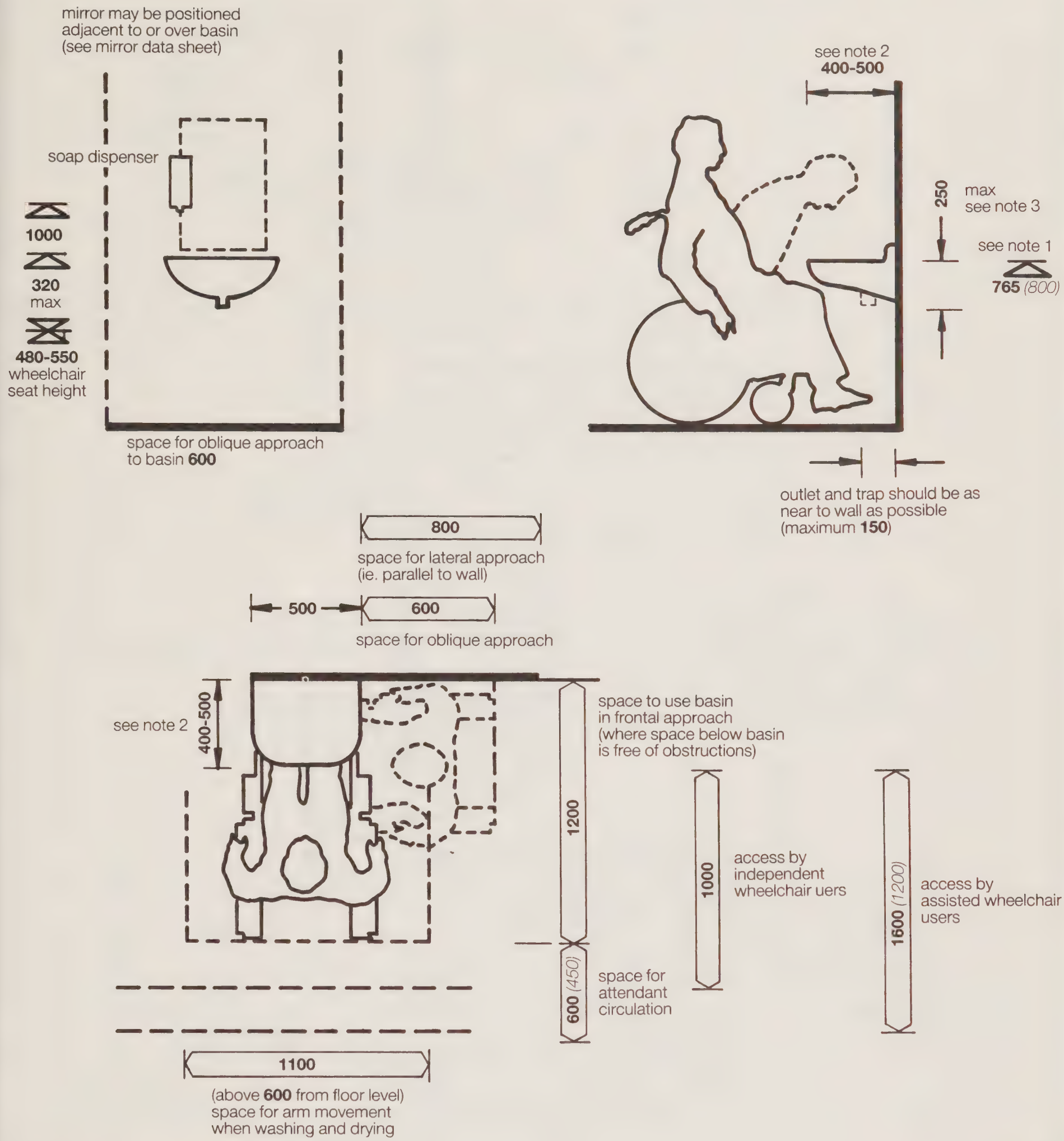


Fig.60

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Basin rim height - 765 above floor level is recommended. This is slightly higher than ideal for normally seated users, but is necessary to accommodate the higher seat height of wheelchairs (480-550) as opposed to 430-440 for normal upright chairs). Deep cushions are frequently used giving seat heights of 520-550.

2. For personal washing activities by wheelchair users a basin projecting 500 is preferred to provide adequate leg room under the basin in frontal approach. A depth of 500 is essential for such activities as hair washing and face washing (maximum basin projection - 700).

3. Care must be taken in the selection of basins for wheelchair or other seated users. Despite the need for a relatively large cantilever projection, it is essential that the basin profile be as shallow as possible, ie. it should be tapered from the rim to a depth preferably not exceeding 250 (max.) at the outlet, which in turn should be positioned as near the supporting wall as possible.

4. See HTM 64.

Activities:
Handrinsing

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Basin
handrinse

Users:
assisted and independent wheelchair users

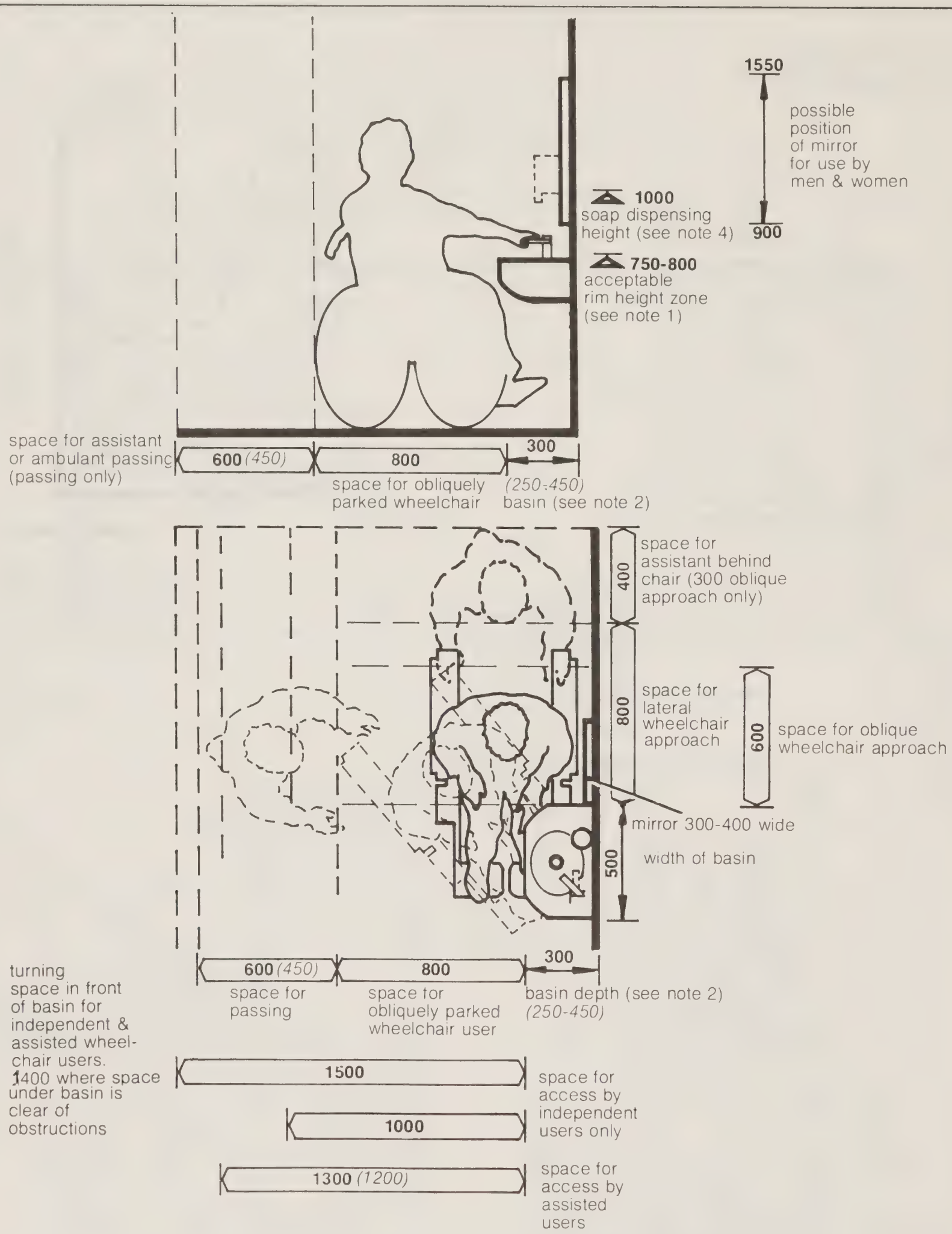


Fig.61

1350 (1300)

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. Rim heights between 700-750 would be preferable, but as basin profiles obstruct user access it is essential to increase the rim height to provide knee space under the basin. The increase should be kept to a minimum. Rim heights over 800 are unsatisfactory for small users.

2. Handrinse basin dimensions vary (250-450). Basins which project less than 300 tend to be unsatisfactory in use, in that they do not adequately contain splashing. (This is a particularly critical requirement for seated users). For this reason recessed basins, because they tend to be very shallow, are not favoured. Additionally they restrict access and movement of hands which is unsatisfactory for disabled users, and the wall into which it is built prevents approach for comfortable reach to the bowl area.

3. Lever action tap preferred for independent users

4. Soap dispenser (and towel dispenser where provided) must not be positioned over tap, where dispensing action will be impeded.

Activities
Bathing, including drying, undressing/dressing.

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Bath

Wheelchair access

Users
Ambulant adult patients. Independent wheelchair users with minimal assistance.

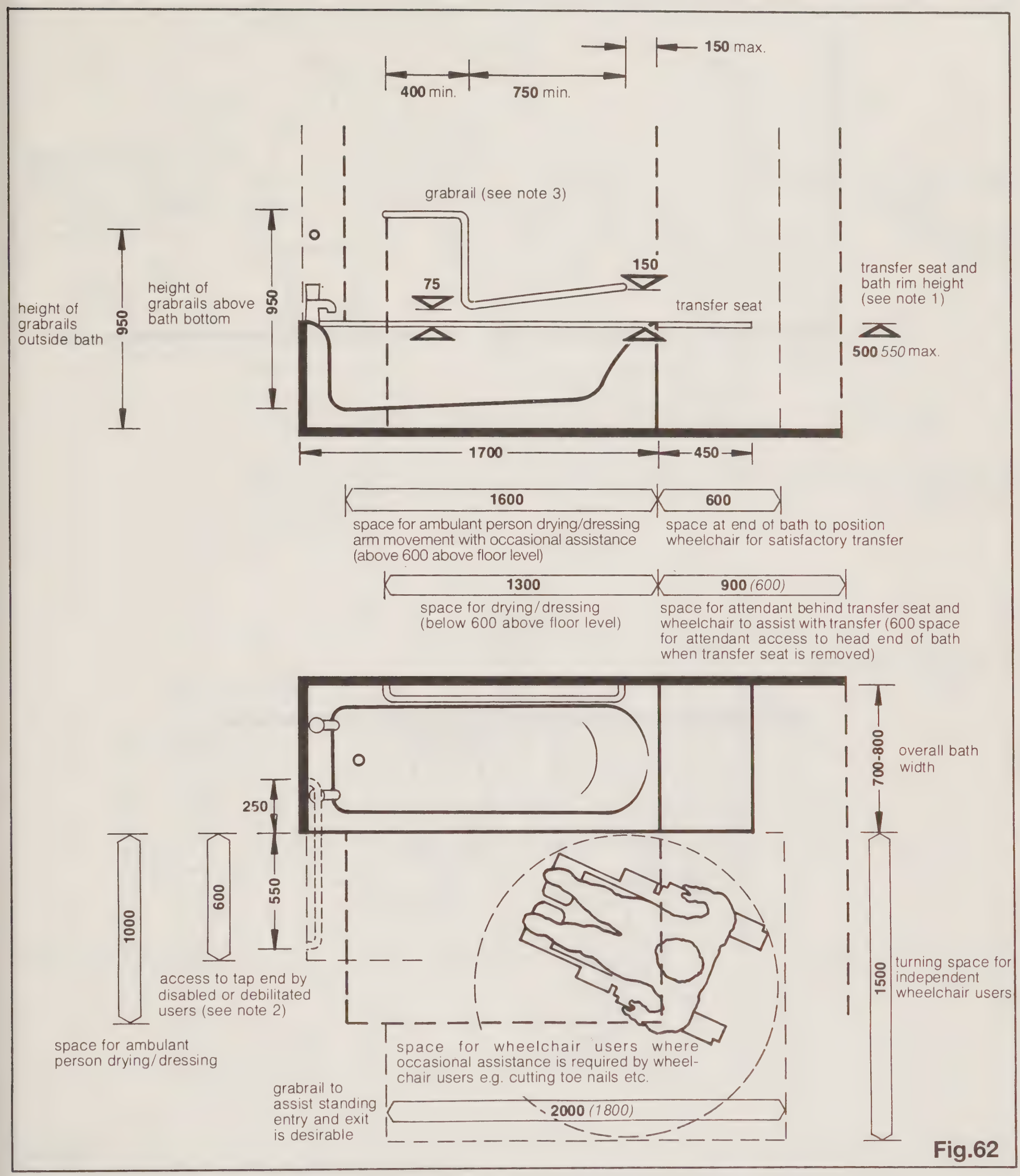


Fig.62

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. The recommended maximum height for fixed height baths is 500 but where principally used by wheelchair users 550 is recommended.

It is important that transfer seat height and bath rim should coincide as any step can cause difficulty during entry or exit. Similarly, wheelchair seat height should be standardised to facilitate the easiest possible transfer. The lower maximum of 500 is preferable for ambulant and semi-ambulant users.

2. Also desirable space for access by attendant and for cleaning bath.

3. Grabrail — 40-45mm (32 abs. min) grasping diameter.

Activities:
Use of bidet for perineal cleansing. Space for transferring onto the bidet from the WC with or without assistance. Assistance may be provided by one or two nurses.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Bidet

Users
Ambulant or semi-ambulant patients and patients on sanitary chairs; also possible use of wheelchair users (see note 1).

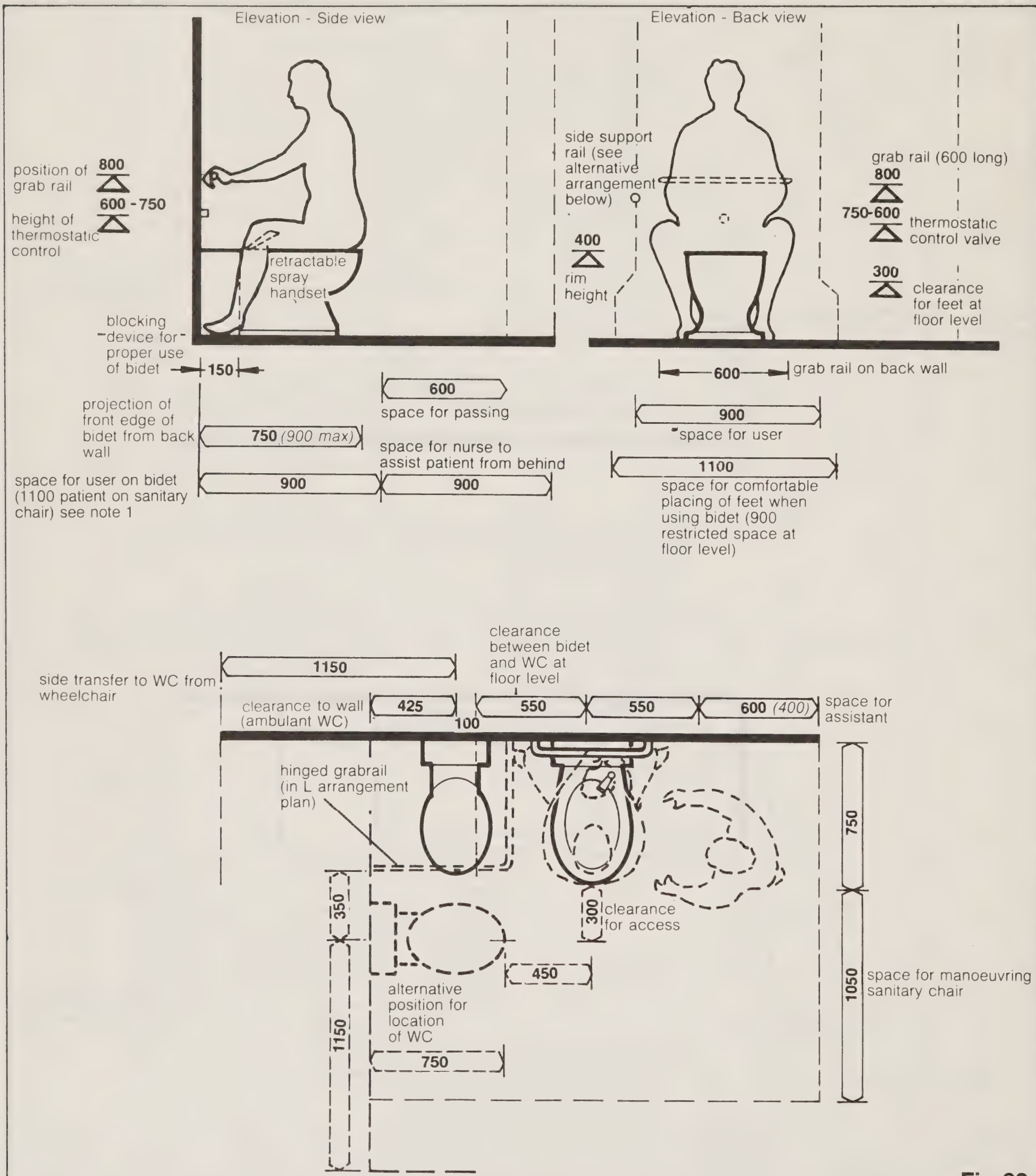


Fig.63

1350 *(1350)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:
1. The bidet is normally used in conjunction with the WC

2. Wheelchair users must have some ability to stand in order to transfer from WC to bidet and back from bidet to wheelchair. Others would require to be manually lifted by 2 assistants. The 'L' shaped plan arrangement (with removable grab rail) is preferable for both categories of wheelchair users.

3. Spray handset should be located in a position over the bidet bowl to minimise possible spillage, or soiling of the handset in the bowl (see HTM 64).

Activities
Use of mirror for grooming (also shaving)

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Mirror
wall mounted

Users
wheelchair users - independent and assisted

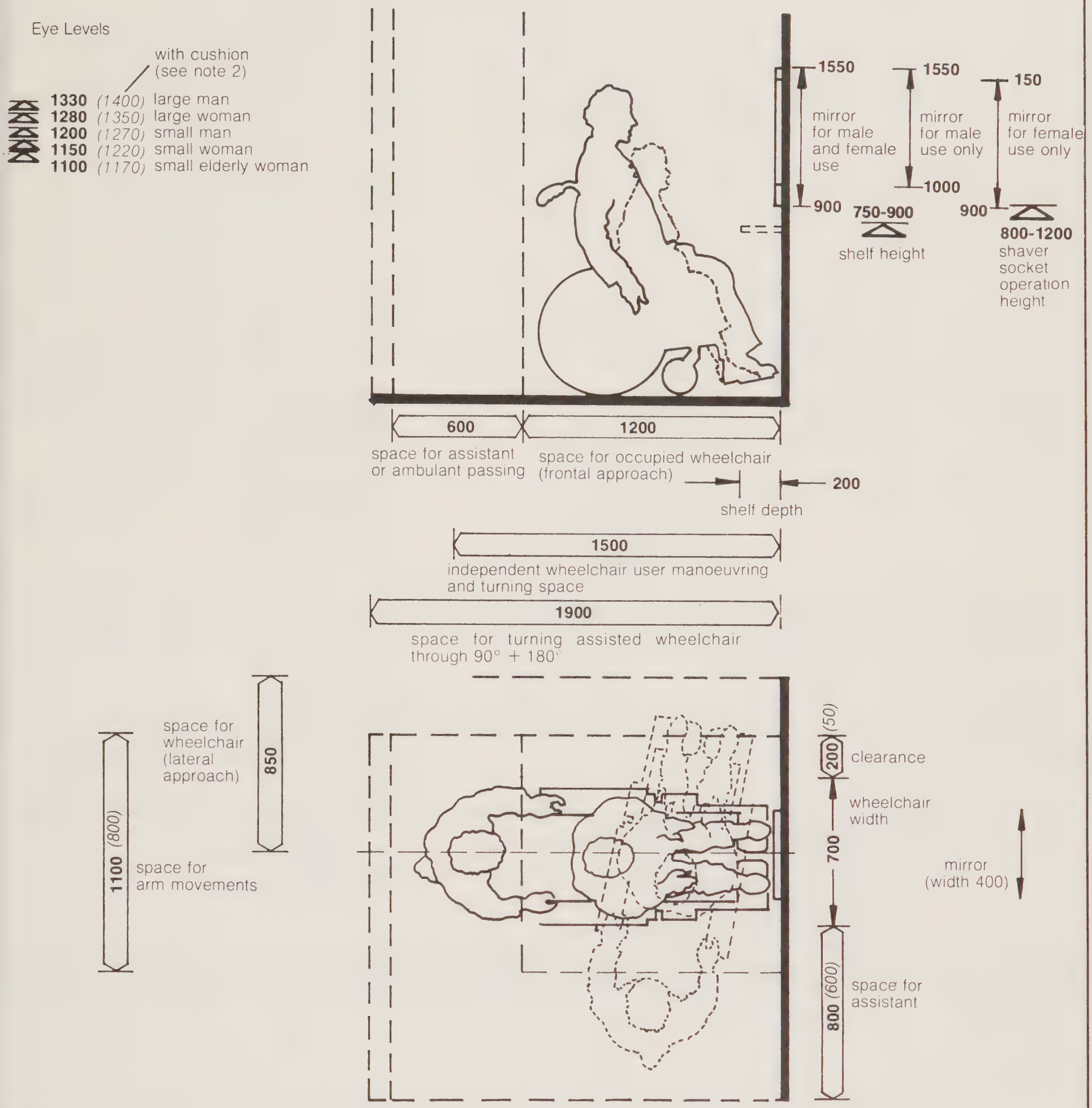


Fig.64

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Recommendations assume average viewing distance of 650, and provide minimum reflecting surface of 150 above eye level and at least 200 below eye level. This provides a view of head and shoulders, sufficient to adjust a tie or necklace.

2. Where a 100mm deep seat cushion has been assumed to increase head and eye levels by 70mm, or to provide an effective maximum wheelchair seat height of550.

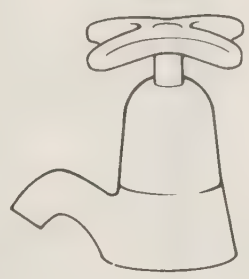
Activities:
Turning taps on and off.

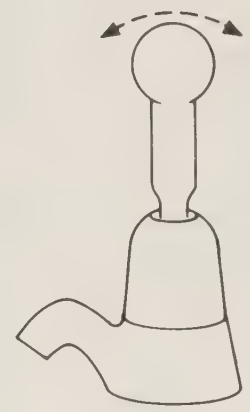
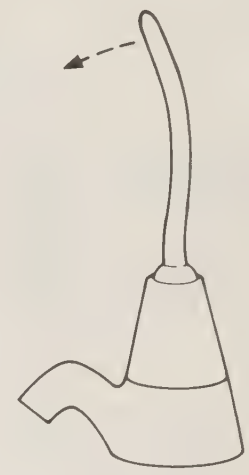
DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Taps (1)

Basin

Users
Disabled



	SCREW DOWN			TOGGLE ACTION	
	CROSS HEAD	DOME HEAD		BALL HEAD	EXTENDED LEVER/ KNOCK ON/OFF
POSSIBLE GROUPS OF USERS	Persons who have strong hands and good control + moderate grip strength.	Persons who have strong arms and hands. (1. Where design is smooth or only slightly serrated good grip strength is essential. 2. Broader heads, large domed surface, can be used by persons who cannot grip using palm of hand with wrist and arm movement only).		Persons who have arthritic hands or very poor co-ordination i.e. suitable for people not able to grip well but who have moderate strength and sufficient ordination to hold lever down largely using using natural weight of arm.	Persons who can move arms, (but not necessarily hands) and have moderate strength and co-ordination to hold lever down as required.
RECOMMENDATIONS OF USE	Should generally only be used where user population have no manual disabilities or infirmity. Not recommended for use by the elderly.			For use where large percentage of users are old, arthritic or have generally poor co-ordination.	
MECHANISMS	Not self-closing (non concussive) thread which is screwed down when tap in off position, screwed up when tap is opened.			Can be either self-closing or not. Concussive valves tend to be difficult to control manually and water is consequently delivered in surges, which can be dangerous - Non-concussive valves are therefore preferred.	
OTHER NOTES	1. Where screw taps are used the head should provide a secure grip, thus the cross head is preferred to the dome head. 2. In both cases if a plastic thread is used as opposed to metal friction is reduced and the tap is easier to turn. 3. See also adaptor (cross head tap spanner). 4. Can also be fitted as remote taps e.g. under or at front of worktop.			2. Very easy to use, but must be held in position to maintain waterflow. 2. Large ball heads (30-50 diameter) are comfortable to use. 3. Toggle action valves should preferably have insulated handles.	
Maximum temperature as on all taps should be controlled by a thermostat since disabled people often have sensary disabilities or cannot react and move quickly enough to prevent scalding					
DIMENSONS (mm) Total height above basin surface	100-110	100		155	220
Distance from centre of tap to water source.	75	75		75	75

Notes:

1. Tap Controls must be positioned so as to be accessible to the wheelchair user, and be preferably within the range of comfortable reach. Adjacent floor space should if possible afford both forward and parallel approaches.

2. For wheelchair or seated use, tap controls must be within the range 600-1150 (restricted operation - 500-1250 - where approach is unobstructed). Preferred height 850-900, depending upon type of operating mechanism.

3. Taps must be operable with one hand and should preferably not require a tight grasp, a pinching action or excessive twisting of the wrist for satisfactory operation by a person who is manually handicapped. The force required should not exceed 22N (5lb ft).

4. Owing to the very considerable variability of manual handicap among disabled people, there is no single tap design which will always be satisfactory. Characteristic groups will often require individual consideration.

5. For persons with weak or arthritic hands, conventional screw-down taps are difficult to use. Spring-loaded self-closing taps, which need to be pushed down and held down for operation should not be fitted where there are disabled or debilitated users.

6. The temperature of water drawn from hot water sources used by elderly or disabled persons must be thermostatically controlled. Sensory impairment causes a high risk of injury by scalding. Manual mixing valves are not recommended, as the temperature can fluctuate rapidly due to unequal pressures in the hot and cold water supplies.

Fig.65

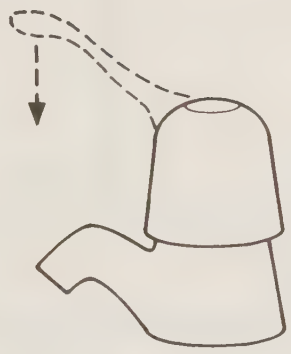
Activities:
Turning taps on and off.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale.

Taps (2)

Basin

Users:
Disabled



Single tap Short Lever Tap Mixer tap with 2 levers

	SPRING LOADED (PUSH DOWN) (Not recommended)	LEVER ACTION		
		SINGLE ACTION LEVER	SINGLE ACTION LEVER	1/4 TURN
POSSIBLE GROUPS OF USERS	Only suitable for persons who have strong wrists, hands & arms, and have co-ordination to hold tap down during operation.	Persons who have poor grip and a weak or poor wrist movement.		
RECOMMENDATIONS OF USE	Should only be used where user population is fit and not old, and as second choice to screw down taps. (Not recommended)	For use where a proportion of users are old, arthritic, have weak hands and wrists etc.		
MECHANISMS	Spring loaded taps are self closing and work by pressure on top forcing valve down & open. They normally require a great deal of force to stay open, and are therefore unsuitable for debilitated persons.	Separate taps are required for hot + cold water supplies (they may be fed into basin through two spouts or a mixer). Temp. of hot water is regulated by a thermostat. Lever only alters flow of water. Not self closing	One tap carrying both hot + cold water. Movement of lever is in two directions eg vertically & horizontally to control on/off and temp. (A max. temp. should be regulated by a thermostat). Not self closing.	Separate taps are required for hot + cold water, but movement of level from 'off' to 'full on' is through 90° max (60°-70° pref). The seal off is applied pressure and the spindle does not revolve. Not self closing
OTHER NOTES	1. Some push-down taps have levers which make operation easier, since the operating force required is decreased. This remains excessive for persons with very weak hands.	1. Facilities used for personal washing should not have long lever arms forward when in the open position, as this impedes access to the sink or basin, and is potentially hazardous when users lean forward. The positioning of taps should be carefullyconsidered as access to soap dispensers etc can be obstructed. The storage of items behind taps of this design is generally not recommended. 2. A valve where the return of the lever is retarded to avoid concussion is preferred. 3. Lever controls may be remote controls (see Taps 3)		

Maximum temperature as on all taps should be controlled by a thermostat since disabled people often have sensary disabilities or cannot react and move quickly enough to prevent scalding

DIMENSIONS (mm) Total height above basin surface	50	200 (single)	200 mm (single)	200 average
Distance from centre of tap to water source	75	100 (single) 180 (double)	100 mm (single) 180 mm (double)	100 (single) 150-200 (double)

Notes: — see TAPS (1) data sheet and HTM 64.

Fig.66

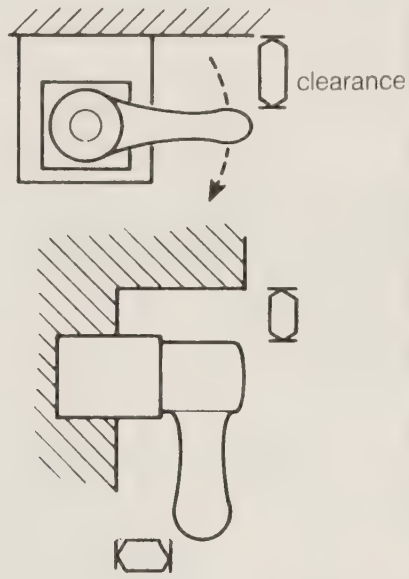
Activities:
Turning taps on and off.

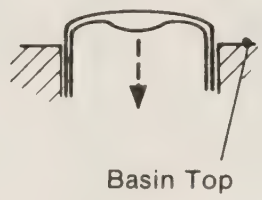
DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale.

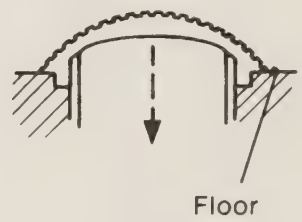
Taps (3)

Basin

Users:
Disabled







	REMOTE CONTROL		
	LEVERS	PUSHBUTTONS	FOOT OPERATED BUTTONS
POSSIBLE GROUPS OF USERS	Persons who have weak hands and wrists and who have restricted reach or co-ordination.	For persons who do not have much strength or co-ordination.	For persons who do not have use of arms.
RECOMMENDATIONS OF USE	For use by people in wheelchairs who have some use of arms, but restricted reach.	For use by people in wheelchairs who have little use or co-ordination of hands, arms and restricted reach.	**Not** for use where user population includes wheelchair users.
MECHANISMS	Taps are normally in usual place but operating mechanism is at front or on fascia of basin unit or on the floor in front of basin. Not self closing.		
OTHER NOTES	Where levers are located .under fascia location or action must minimise need to reach under worktop. Action parallel to front edge is therefore preferred.	For recommended dimensions and other characteristics for disabled use, see Manual controls: push buttons data sheet.	
Maximum temperature as on all taps should be controlled by a thermostat since disabled people often have sensory disabilities or cannot react and move quickly enough to prevent scalding			
DIMENSIONS (mm)	lever length 150 pref (100 min) (all clearances 50 min.)	diameter or smallest dimension of button 40mm for palm operation and 25mm for finger or thumb operation.	diameter of button min. 40 mm pref. displacement 15 - 25 mm max.

Notes: — see TAPS (1) data sheet

Fig.67

Facilities for ambulant patient, who may require minimal assistance to have a bath or use wash basin. (Also independent wheelchair use).

DHSS **Ergonomic data bank:**
Activity Space example layout, not to scale.

Bathroom 1

ambulant and wheelchair patients

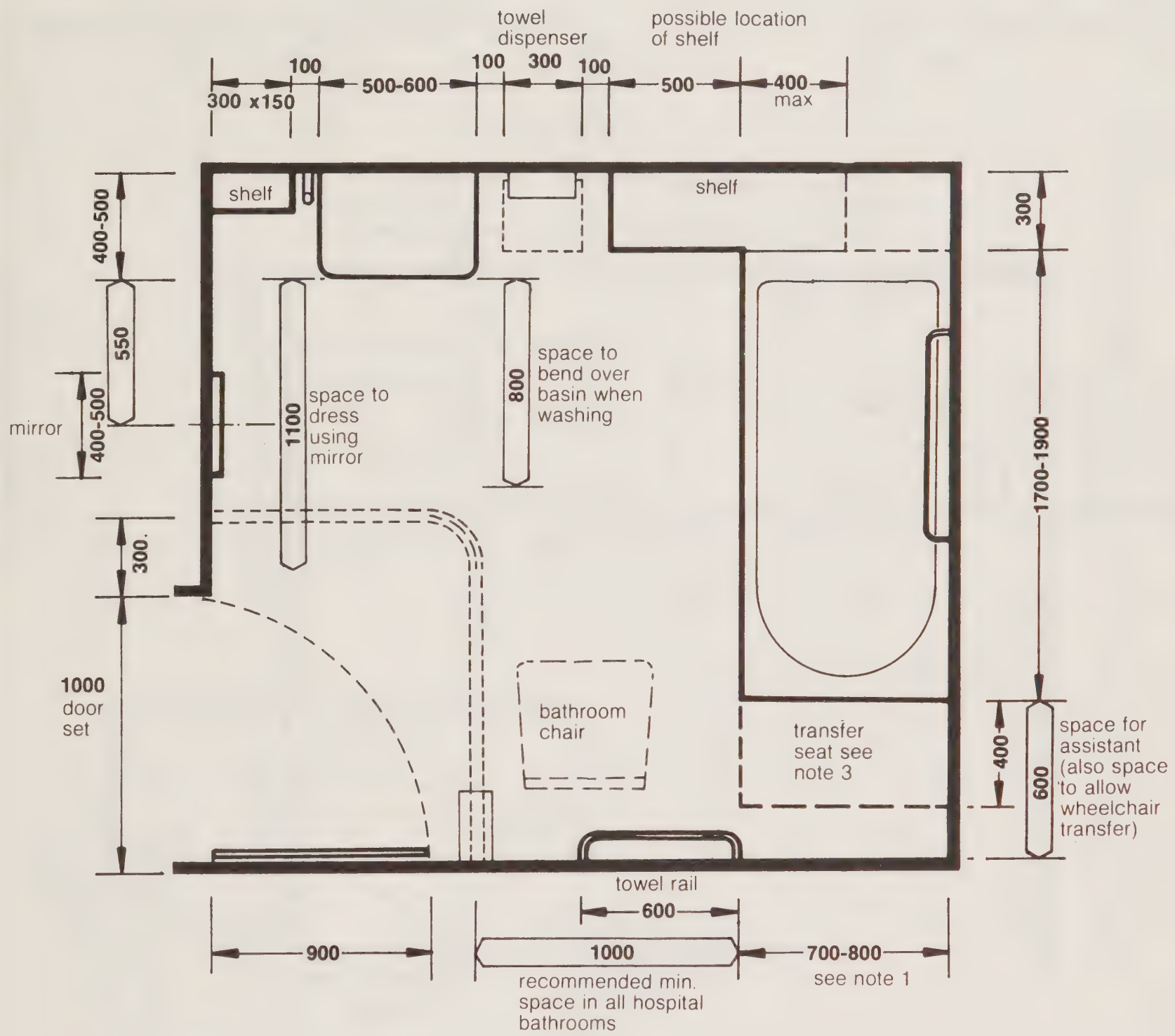


Fig.68

1350 *(1300)*

Preferred minimum *(Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. An 800 wide bath is preferred, as a 700 bath is restrictive for larger adult users.

2. 300 deep shelving for holding towels clean clothing etc is useful. Some shelving at side of bath is also useful to place shampoo, powder, washbag etc.

3. A drop down transfer is desirable to allow the bathroom to be used by wheelchair users and for rehab training.

4. To maintain the privacy of patients when in the bath it is desirable that access doors be screened and that these should not impede access by assisting staff.

Facilities for ambulant patient, who may require minimal assistance to have a bath, use WC, or wash basin. (Also independent wheelchair use).

DHSS' **Ergonomic data bank:**
Activity Space example layout, not to scale.

Bathroom 2

(ambulant and wheelchair patients)

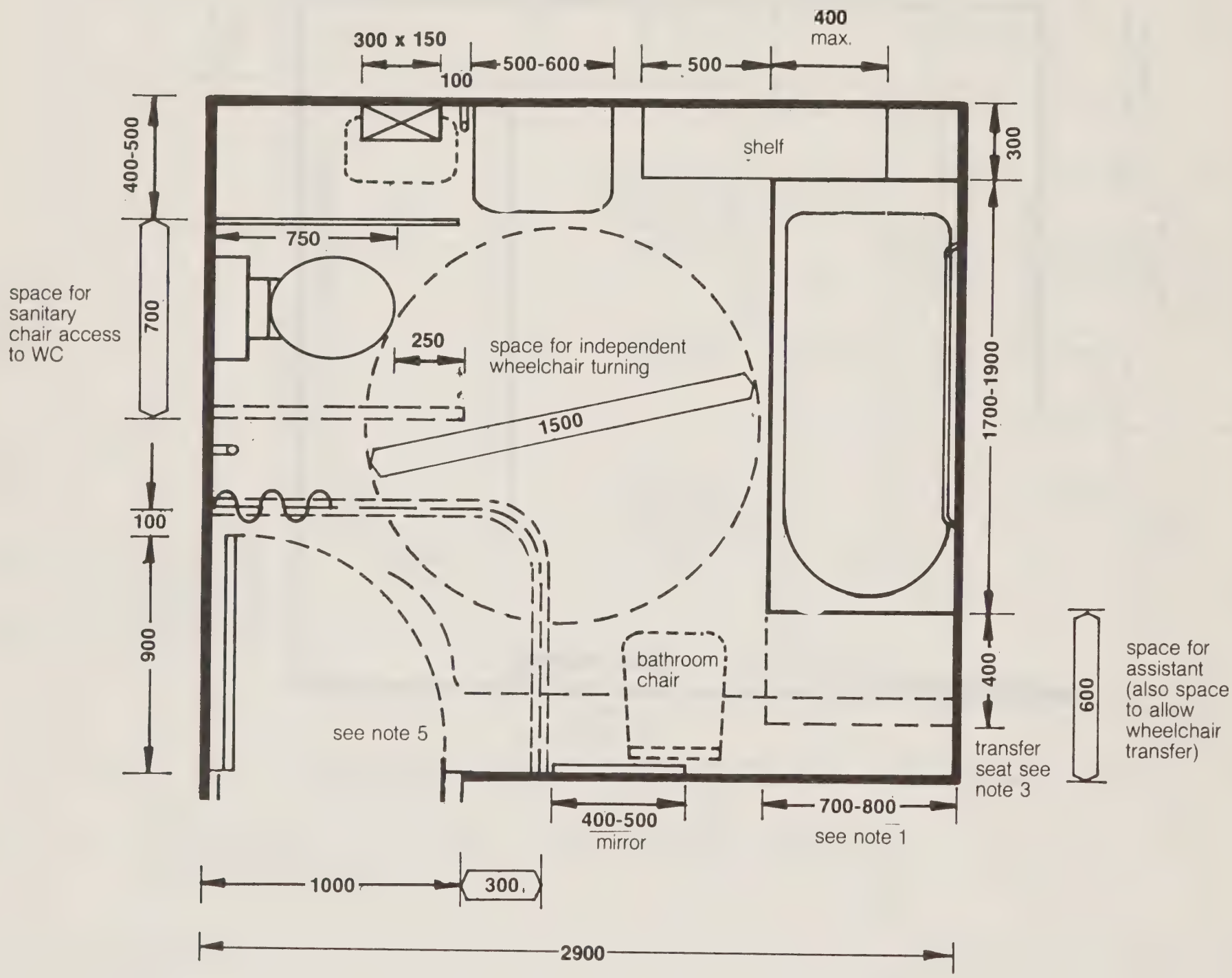


Fig.69

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes).*

Notes.

1. An 800 wide bath is preferred, as a 700 bath is restrictive for larger adult users.

2. 300 deep shelving for holding towels clean clothing etc is useful. Some shelving at side of bath is also useful to place shampoo, powder, washbag etc.

3. A drop down transfer is desirable to allow the bathroom to be used by wheelchair users and for rehab training.

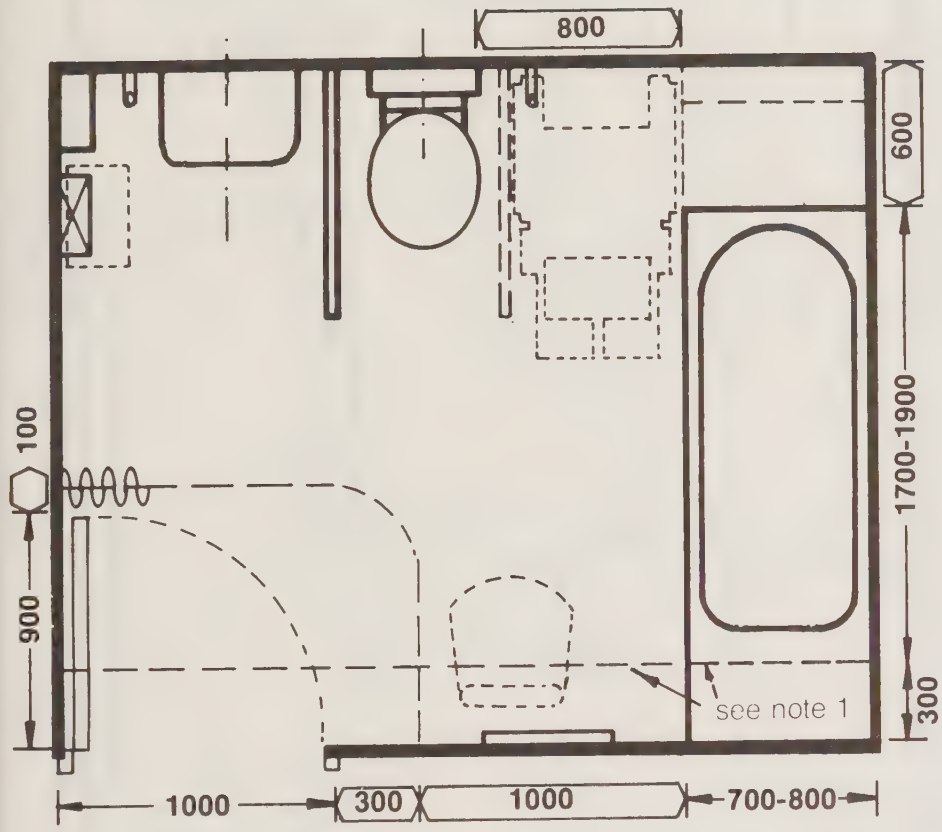
4. To maintain the privacy of patients when in the bath it is desirable that access doors be screened and that these should not impede access by assisting staff.

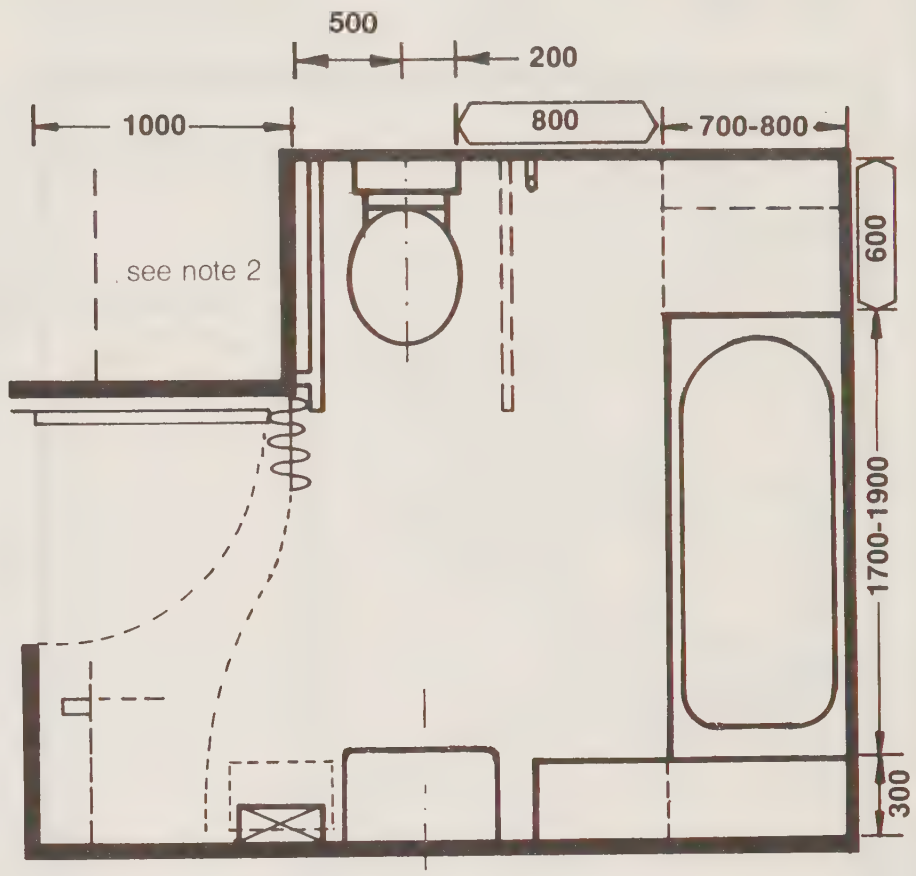
5. Room size can be reduced as shown by omitting shelf at tap end of bath.

Alternative layouts

Bathroom 3
(ambulant and wheelchair patients)

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale





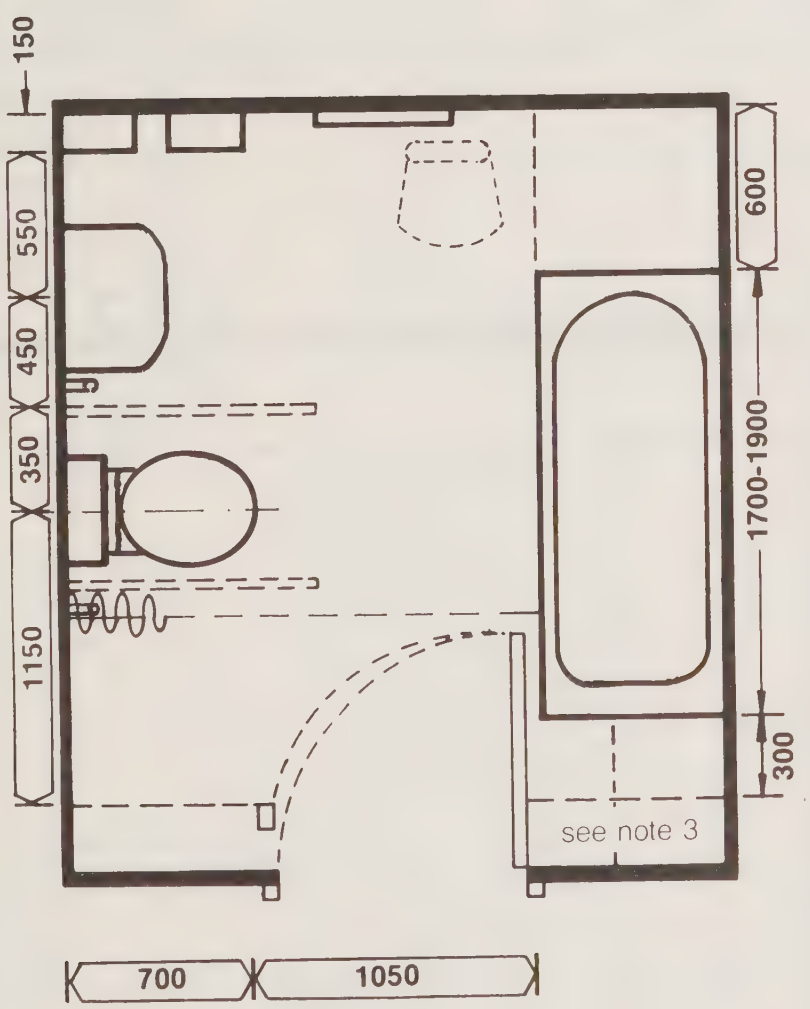


Fig.70

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Room size may be reduced as shown by omitting shelf at the end of bath.
2. Where room is squared off full access to both sides of WC is provided.
3. Room size can be reduced as shown by omitting curtain screen.

Alternative layouts.

Bathroom 4

(ambulant and wheelchair patient)

DHSS **Ergonomic data bank**
Activity Space example layout, not to scale.

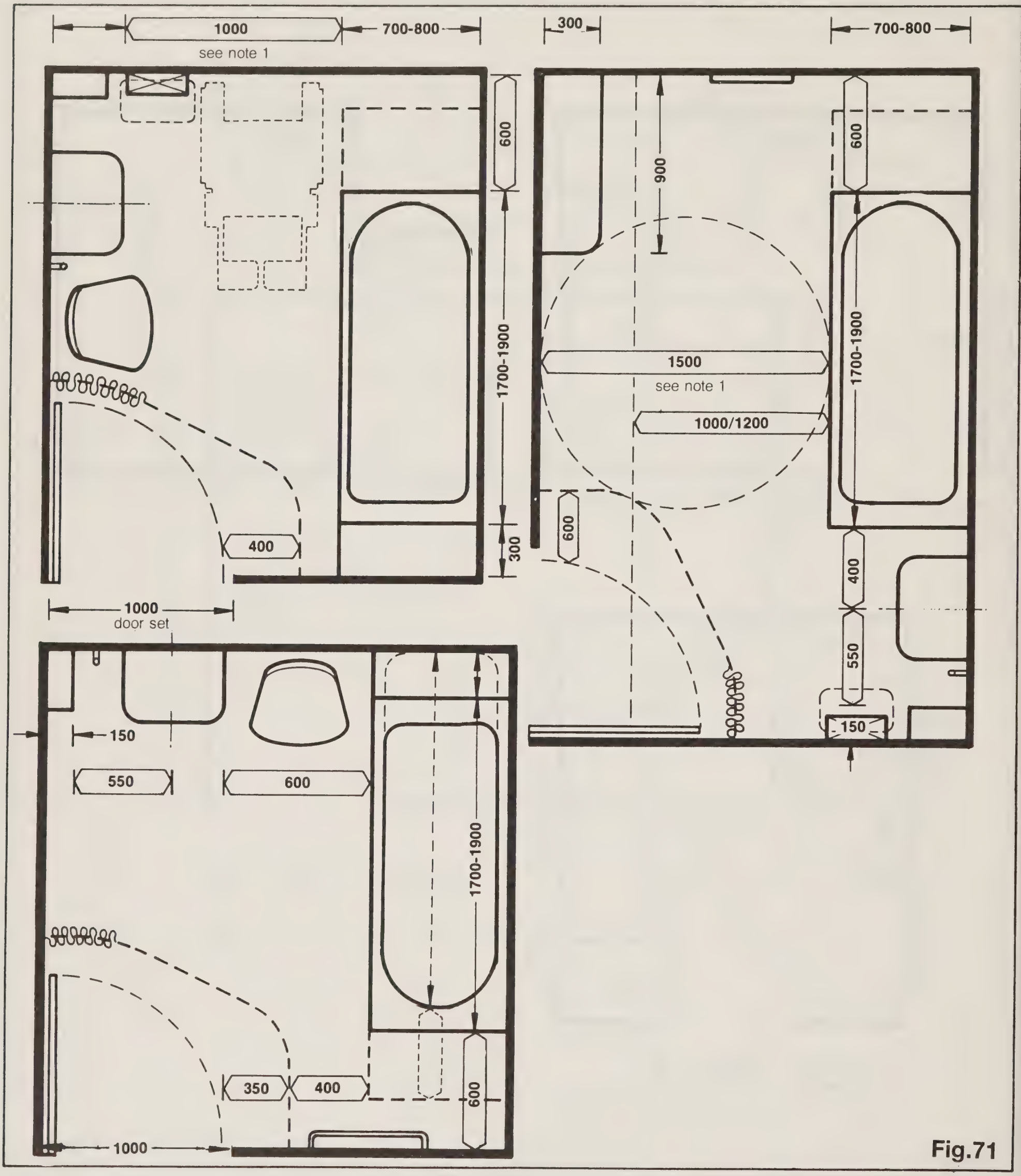


Fig.71

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. To accommodate wheelchair turning space at side of bath should be 1500. Wheelchair access is possible where this space is 1200 but 180° turns will not be possible (ie. user must back into bathroom to use transfer seat). Where space is only 1000 the bathroom will accommodate ambulant users only.

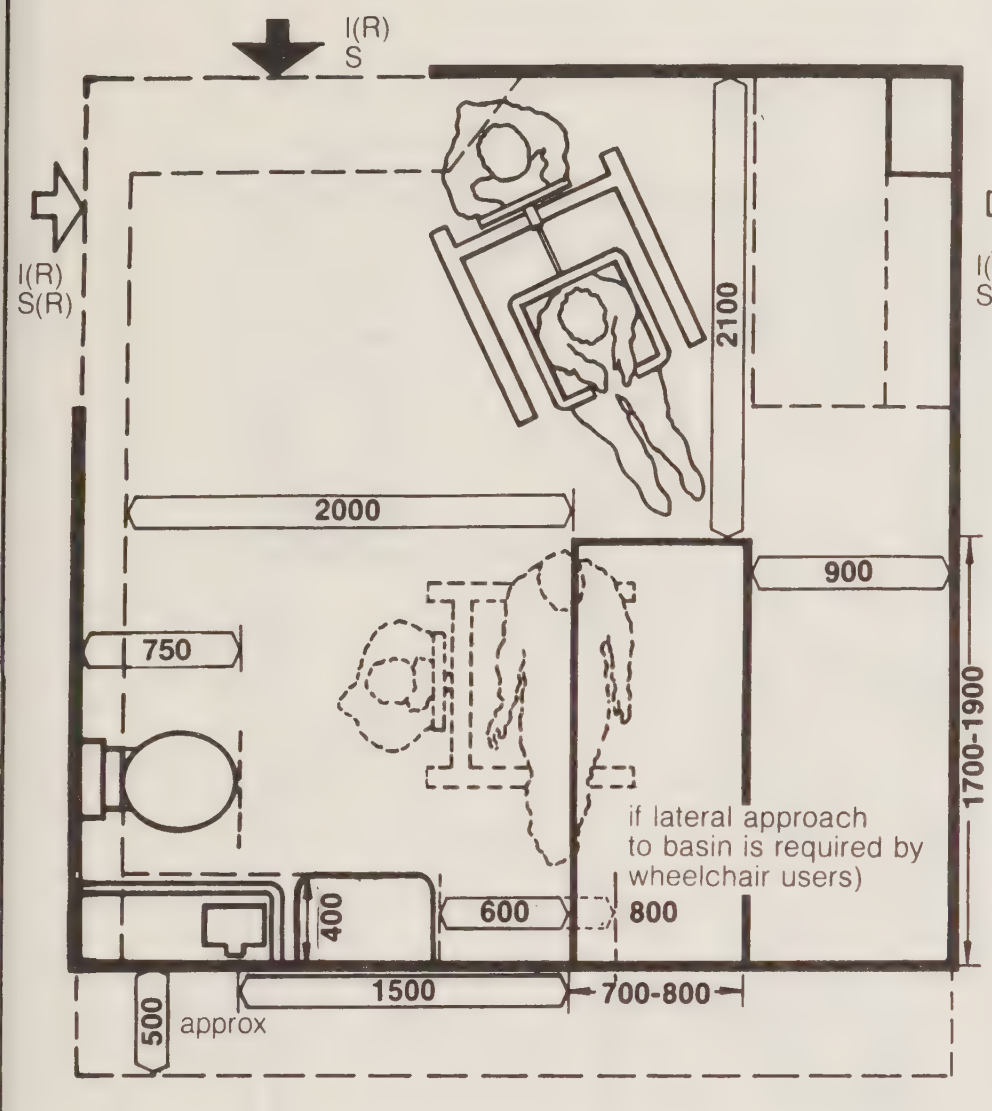
Alternative arrangements (B, C and D)

Assisted Bathroom 1

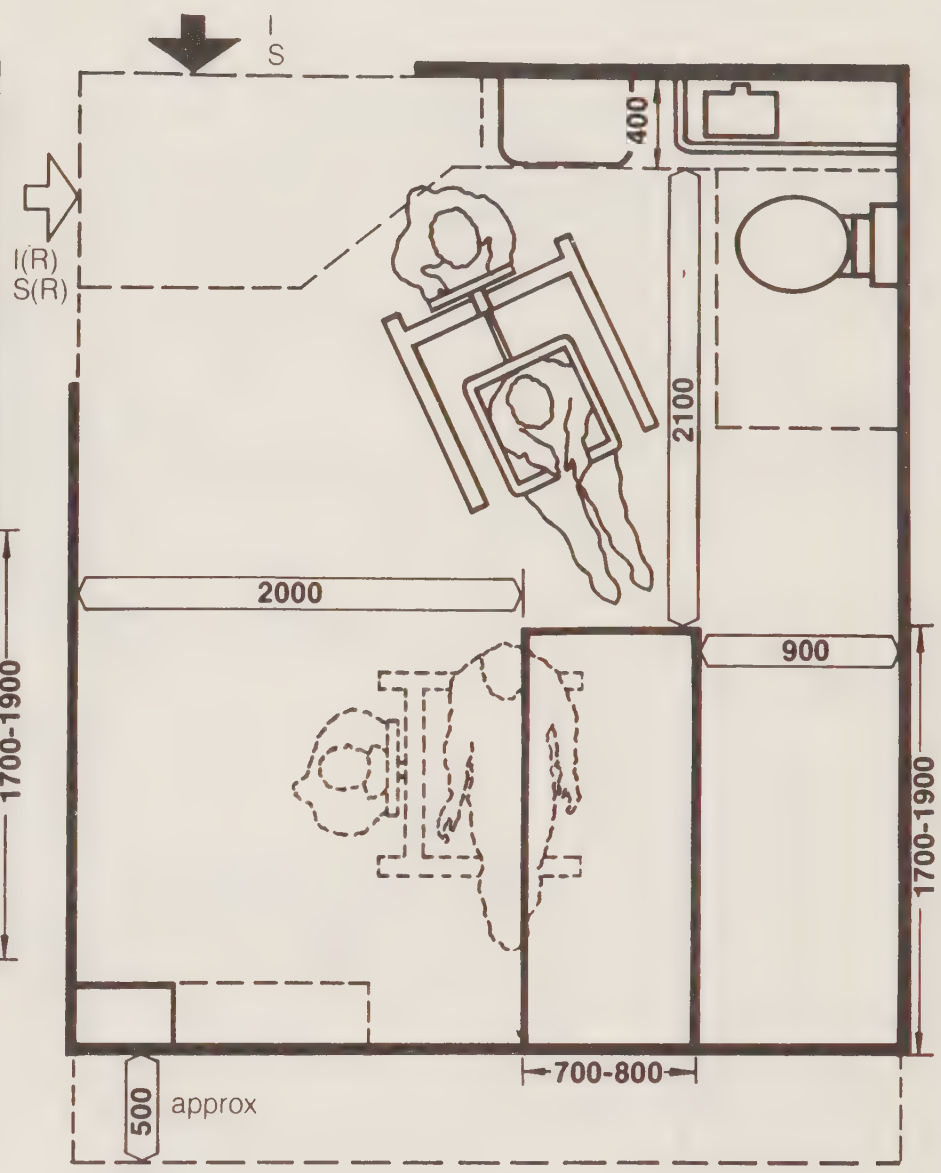
With WC and personal washing facility.

DHSS **Ergonomic data bank:**
Activity Space example layout, not to scale.

Plan B



Plan C



Plan D

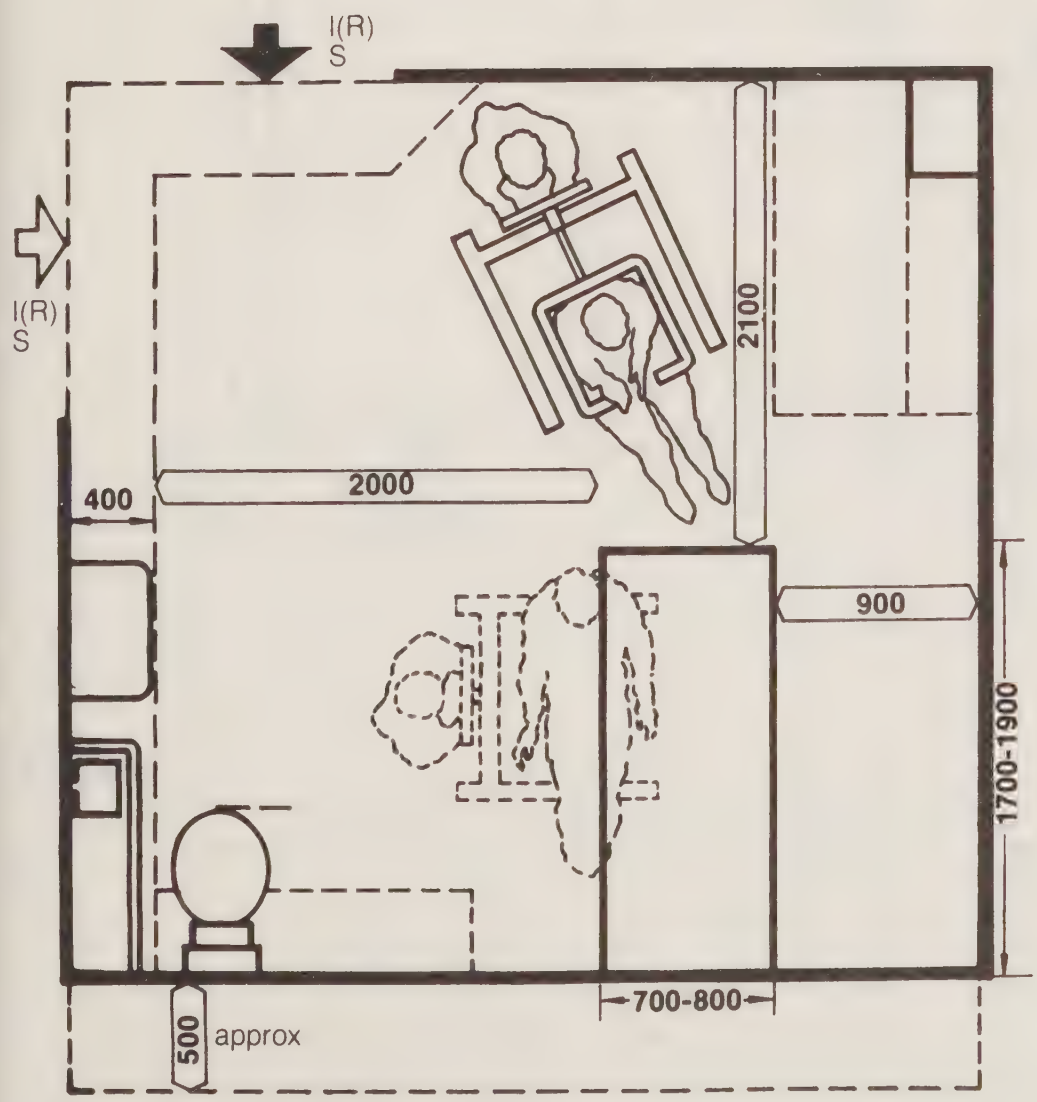


Fig.72

NOTES
See also Door screen arrangements data sheet

Key

= preferred position of access door(s)

= alternative position of access door(s)

I = Inward opening doors
I(R) = Inward opening doors (recessed)
S = Sliding doors
S(R) = Sliding door recessed
(all 1500 door sets)

An activity space with facilities for bathing and drying and dressing patient, including use of patient hoist and assisted use of wc and basin.
(See also alternative layouts B, C & D)

DHSS **Ergonomic data bank:**
Activity space data sheet, not to scale

Assisted Bathroom 2

with WC and personal washing facility

PLAN A

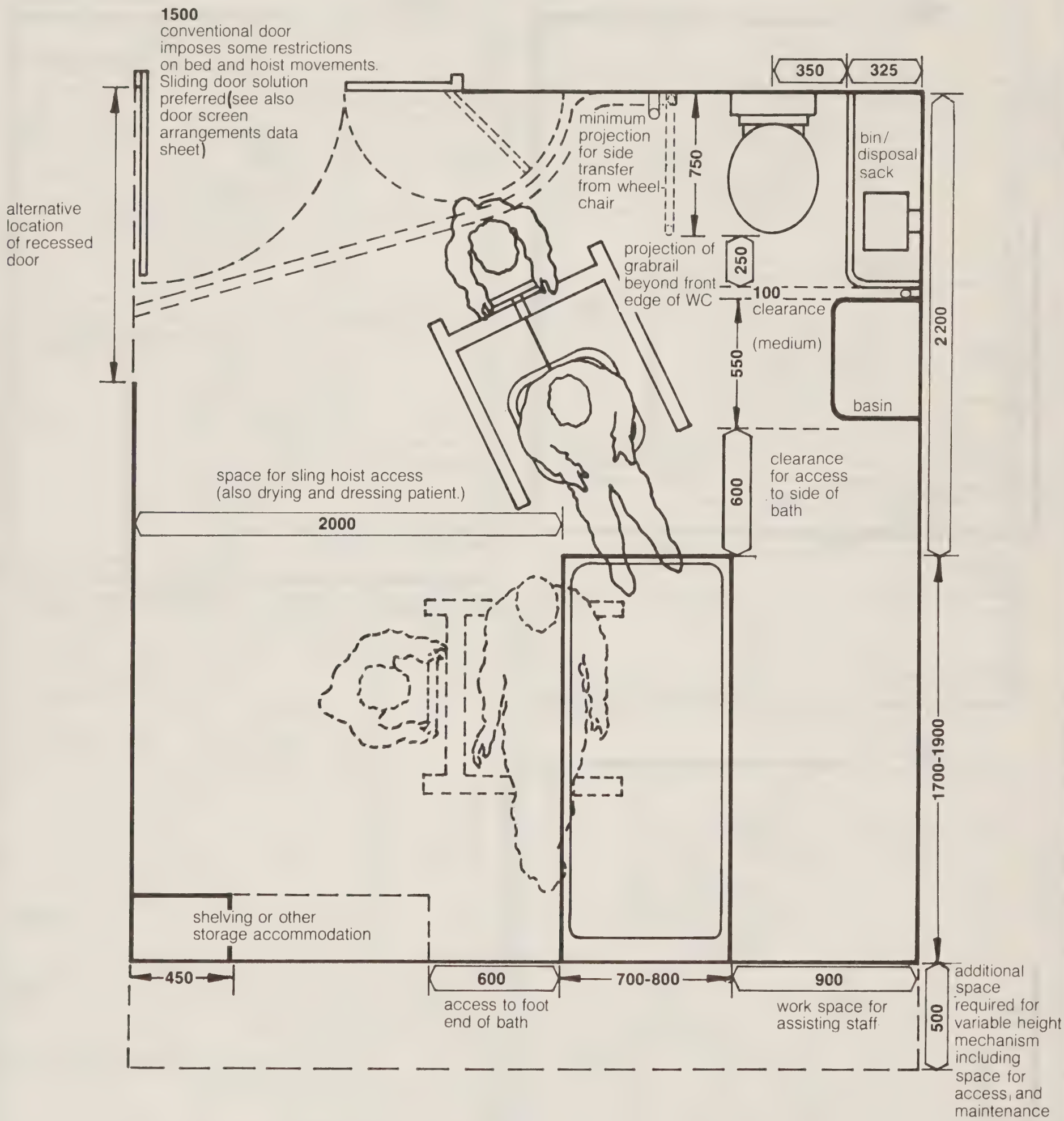


Fig.73

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

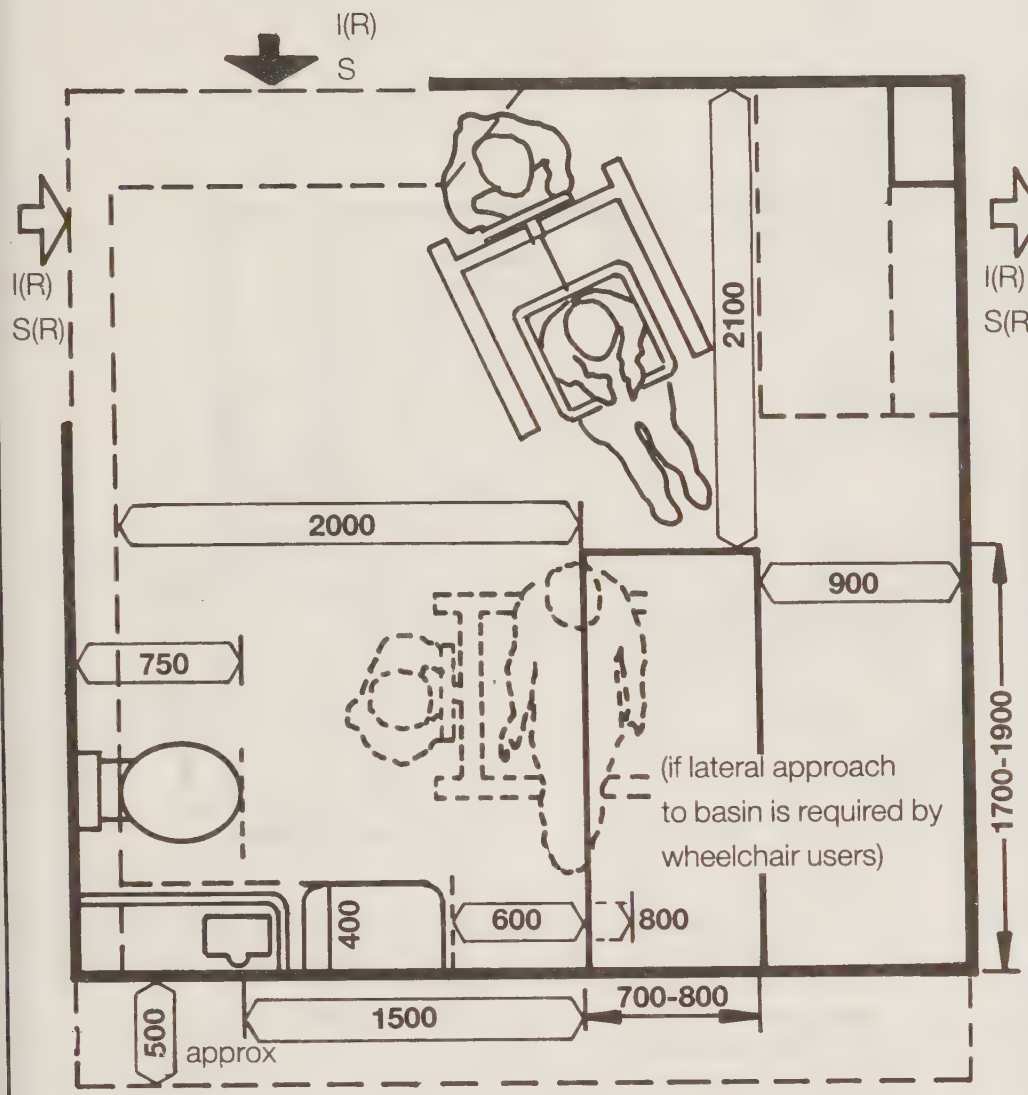
Alternative arrangements (B,C and D)

Assisted Bathroom 3

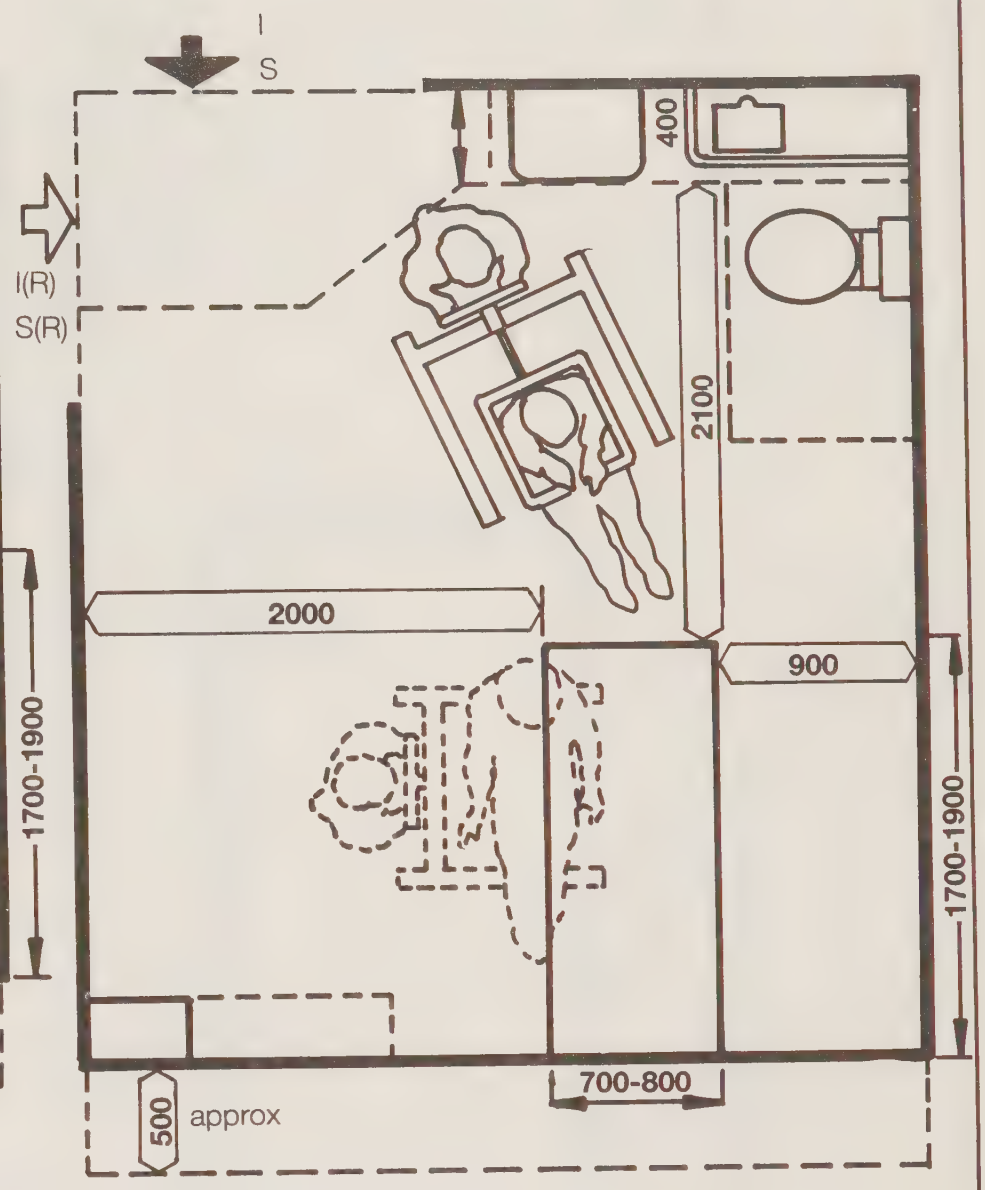
With WC and personal washing facility

DHSS **Ergonomic data bank:**
Activity Space example layout, not to scale

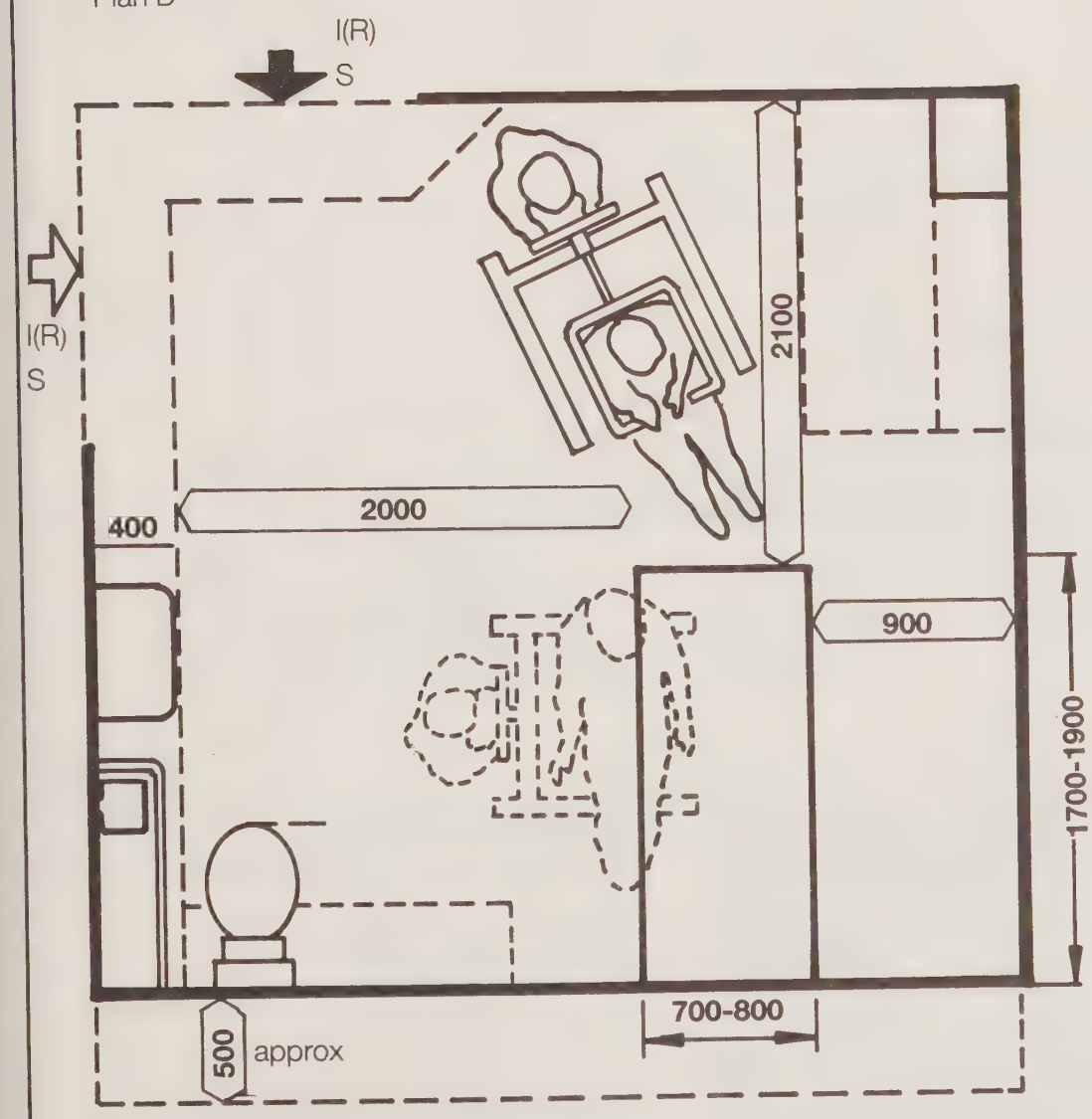
Plan B



Plan C



Plan D



NOTES

See also Door screen arrangements data sheet

Key

= preferred position of access door(s)

= alternative position of access door(s)

I	=	Inward opening doors
I(R)	=	Inward opening doors (recessed)
S	=	Sliding doors
S(R)	=	Sliding doors (recessed)
		(all 1500 door sets)

Fig.74

An activity space with facilities for a patient who may enter the bathroom in a wheelchair, on a hoist or in bed needing the help of staff in bathing; staff may also carry out certain treatments. (see also alternative layouts A-D)

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale

Treatment Bathroom

(with WC and personal washing facility)

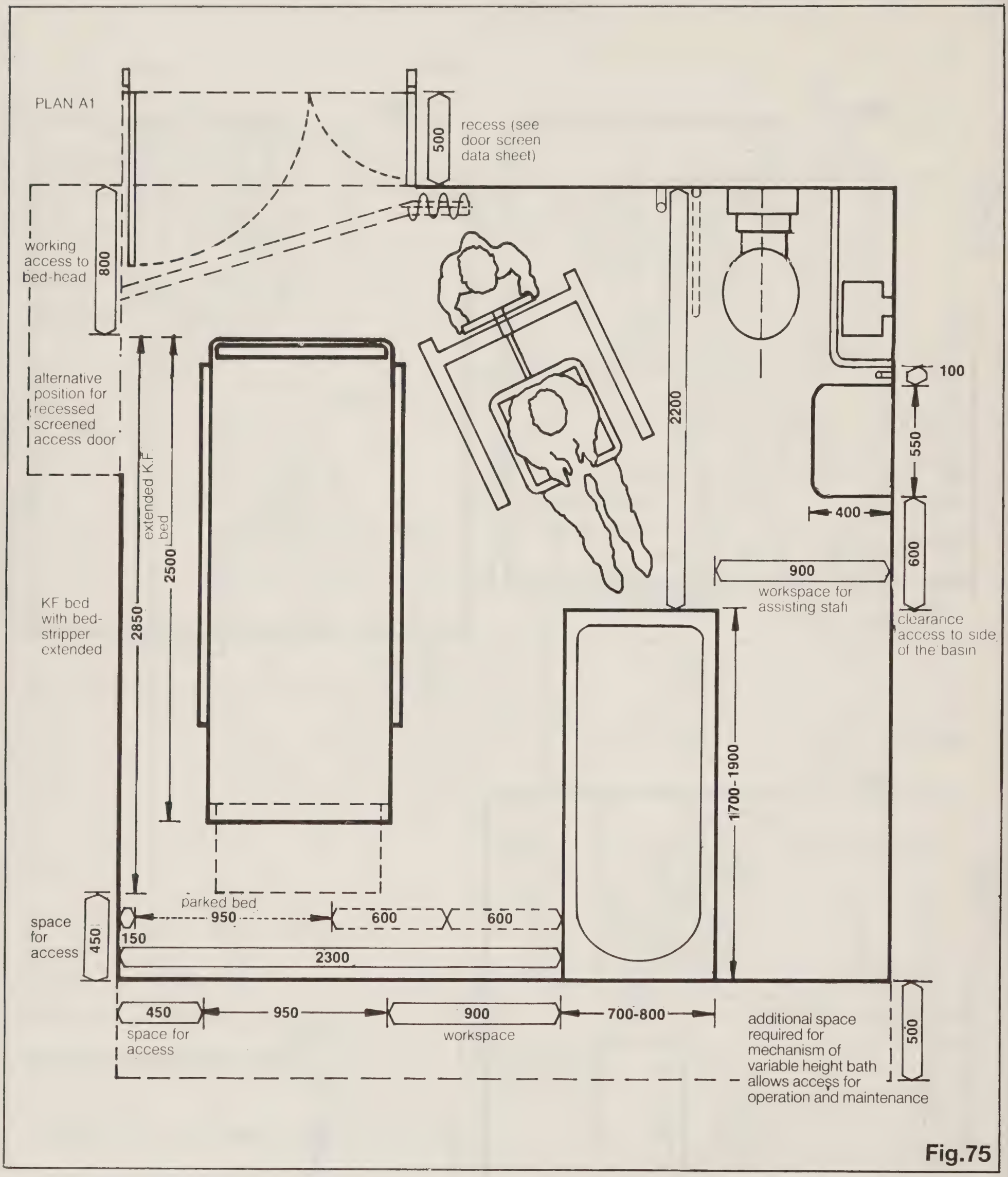


Fig.75

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explantory notes)*

Activities:
Drying and dressing patient in hoist

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (1)

with sling attachment

Users:
1,2 or more nurses + patient

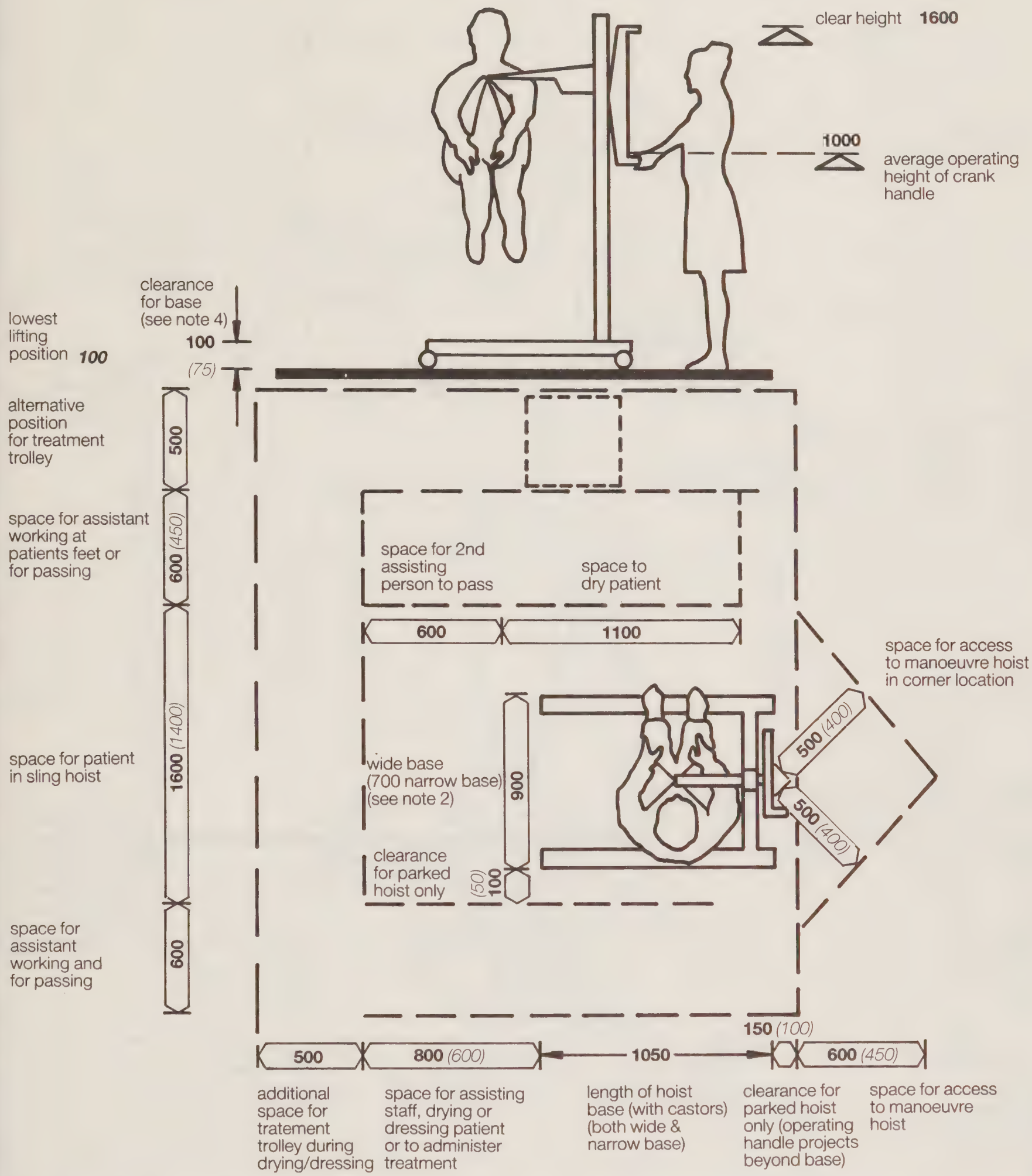


Fig.76

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. The sling hoist tends to be used less frequently than the chair hoist because it is more difficult and takes longer to use. It is, however, used for larger and more difficult patients for whom the chair hoist offers inadequate support and would therefore be both uncomfortable and potentially hazardous. It is not recommended, however for moving patients over long distances.

2. The wider base is recommended for use in all hospital/health building situations because it affords better stability, particularly when patient is in the raised position eg. over a bath (stability can be affected by linen or mats on the floor, where the narrower base is more vulnerable to tipping when it meets the obstruction).

3. Mechanical hoists are preferred to hydraulic mechanisms because they are less prone to failure (which can be dangerous for both patient and assisting staff).

4. Larger castors (75mm) are also preferred as these are much easier to manoeuvre.

5. Approximate rated lifting capacity: 160kgs (350lbs). Approximate lifting range: 900.

Activities:
Manoeuvring patient into and out of bath (side access)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (2)

with sling attachment

Users:
2 or more nurses and patient

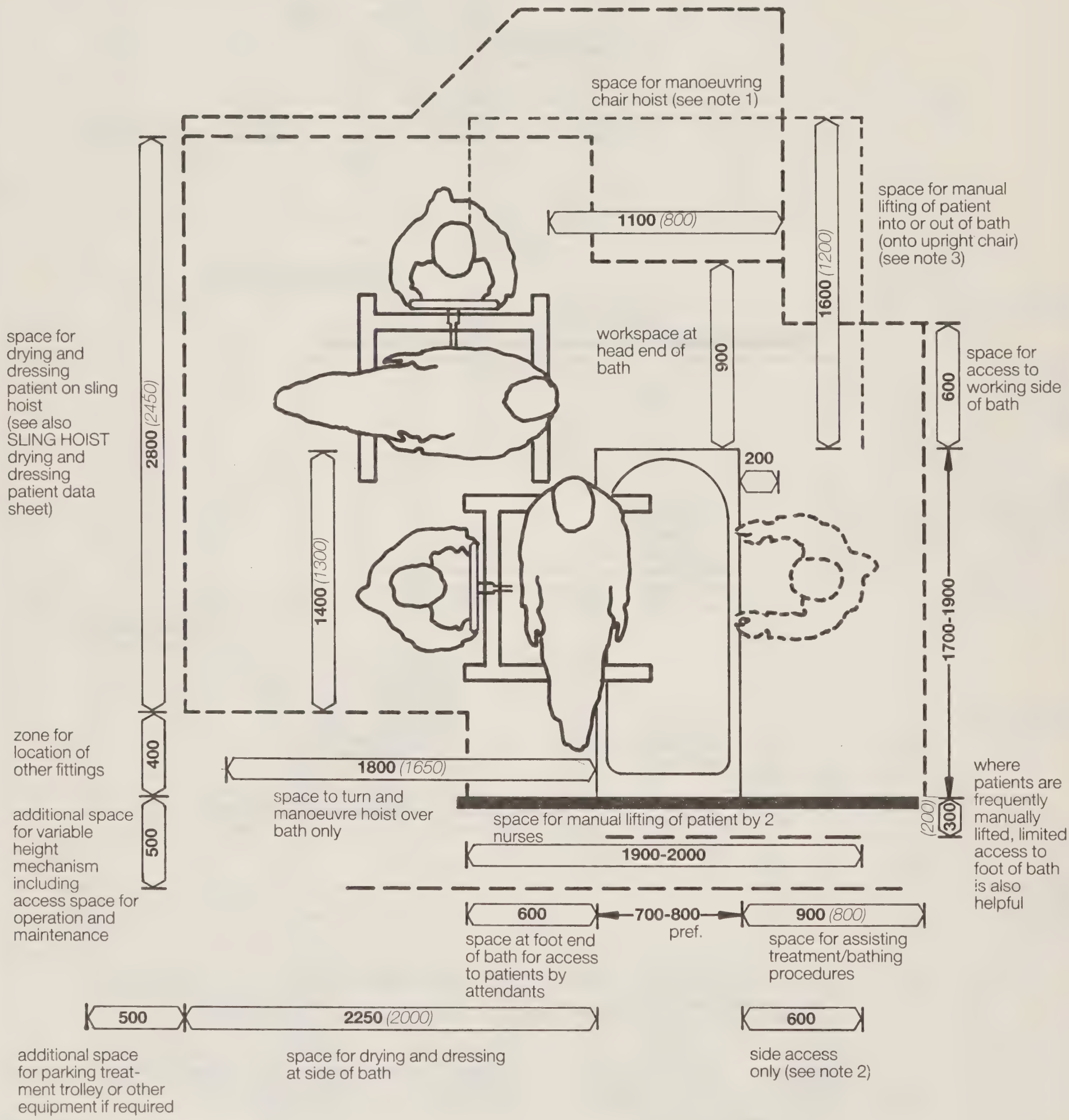


Fig.77

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. Assisted bathrooms should preferably provide space to use both CHAIR and SLING HOISTS. Space at head of bath should therefore accommodate manoeuvring of CHAIR HOIST.

2. Does not provide satisfactory workspace for large male or female assisting staff.

3. Add 300 *(200)* where space is to accommodate wheelchair.

Activities:
Drying and dressing patient on hoist

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (1)

with chair attachment

Users:
1,2 or more nurses + patient

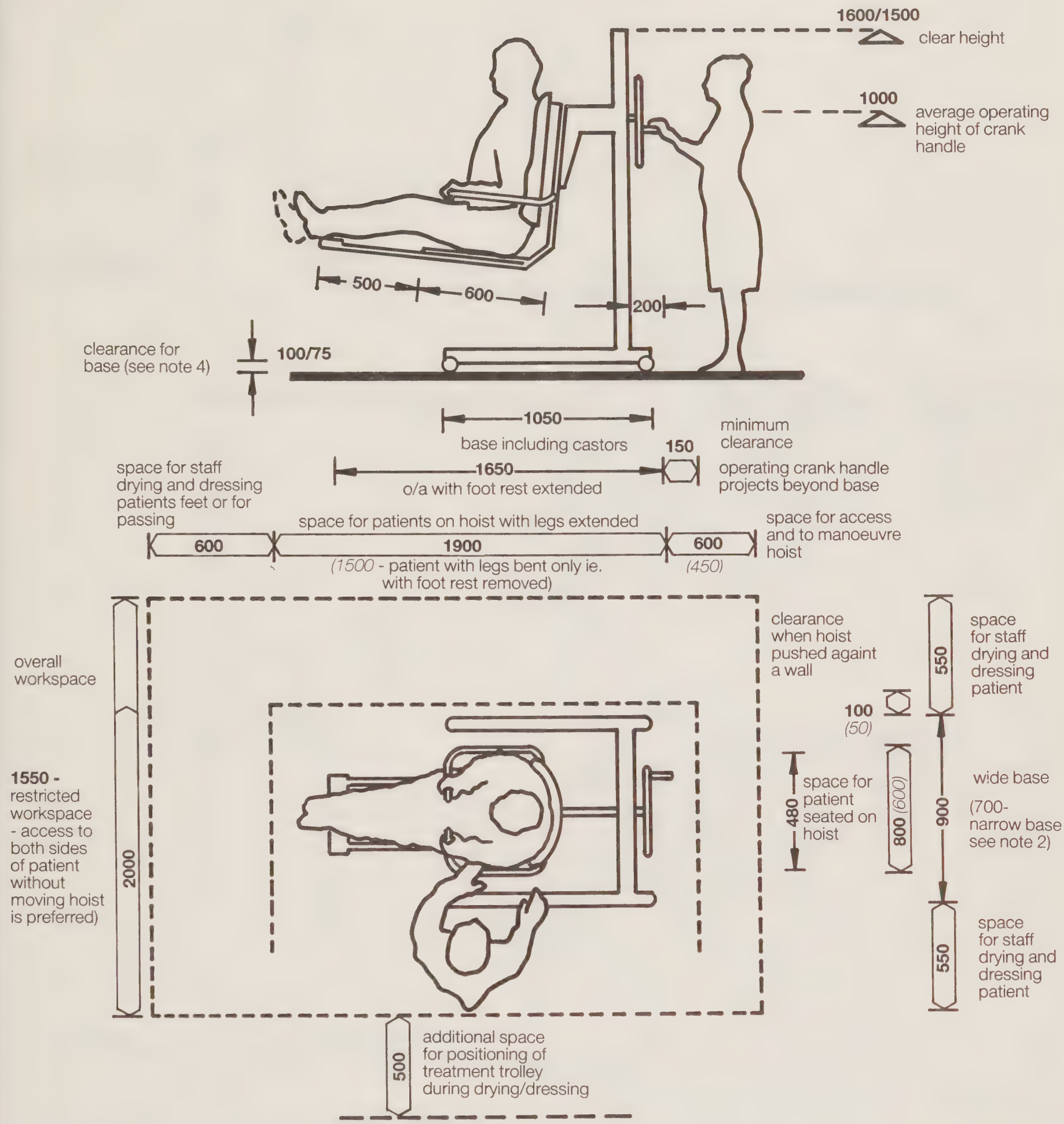


Fig.78

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. Chair hoists are used more frequently than sling hoists because they are easier to use. They may, however, be too small for very obese patients and unsatisfactory for patients who require greater trunk support for whom a sling hoist would be more satisfactory

2. The wider base is recommended for use in all hospital/health building situations because it affords better stability, particularly when patient is in the raised position eg. over a bath (stability can be affected by linen or mats on the floor, where the narrower base is more vulnerable to tipping when it meets the obstruction).

3. Mechanical hoists are preferred to hydraulic mechanisms because they are less prone to failure (which can be dangerous for both patient and assisting staff).

4. Larger castors (75mm) are also preferred as these are much easier to manoeuvre.

5. Approximate rated lifting capacity: 160kgs (350lbs). Approximate lifting range: 900.

Activities:
Turning hoist and patient through 90° & 180°.
Rotating hoist only.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (2)

Mobile chair hoist

Users:
1 staff (moving hoist)

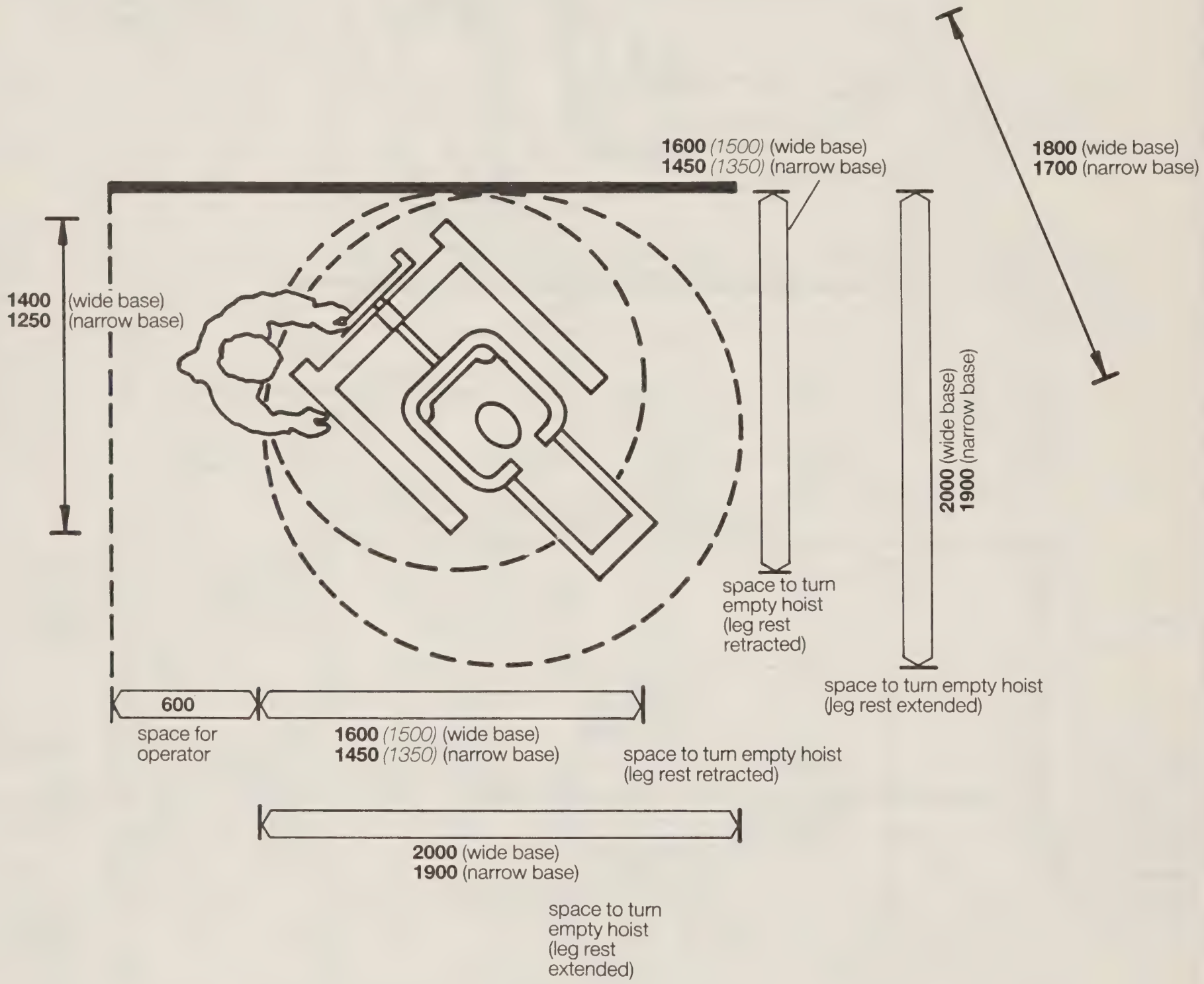


Fig.79

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

reduce space necessary for rotating empty hoist.

Notes:

1. Extended leg rest can be retracted to

Activities:
Space to turn into and out of an opening of minimum width (1150 for wide base hoist and 950 for narrow base hoist)
Space to turn patient through 90° bend

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (1)

Mobile chair hoist
(wide or narrow base)

Users:
1 staff (moving hoist)

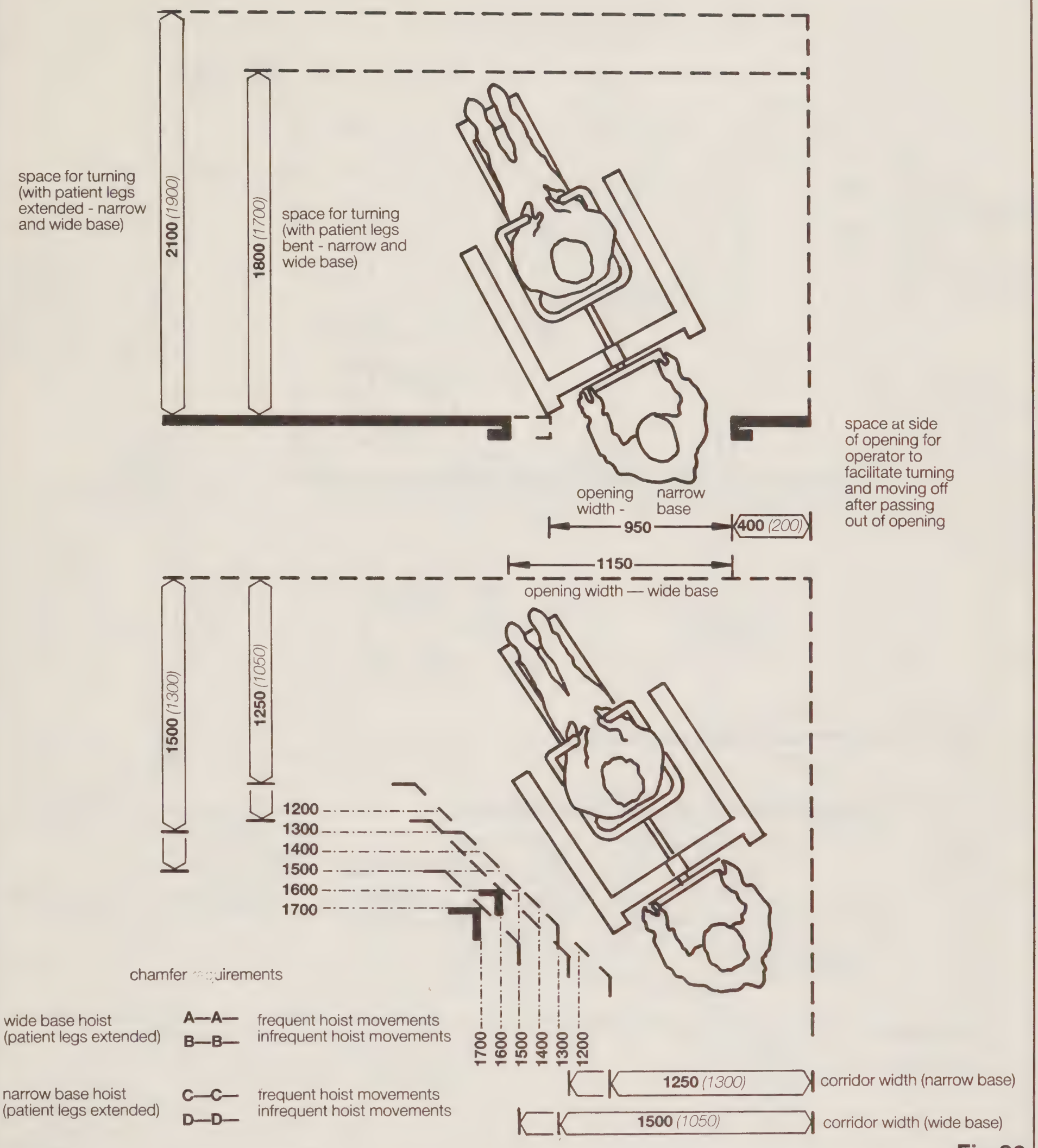


Fig.80

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Activities:
Straight movement of a patient in a hoist (eg. to and from a bathroom)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (2)

Mobile chair hoist
(wide or narrow base)

Users:
1 staff (moving hoist)

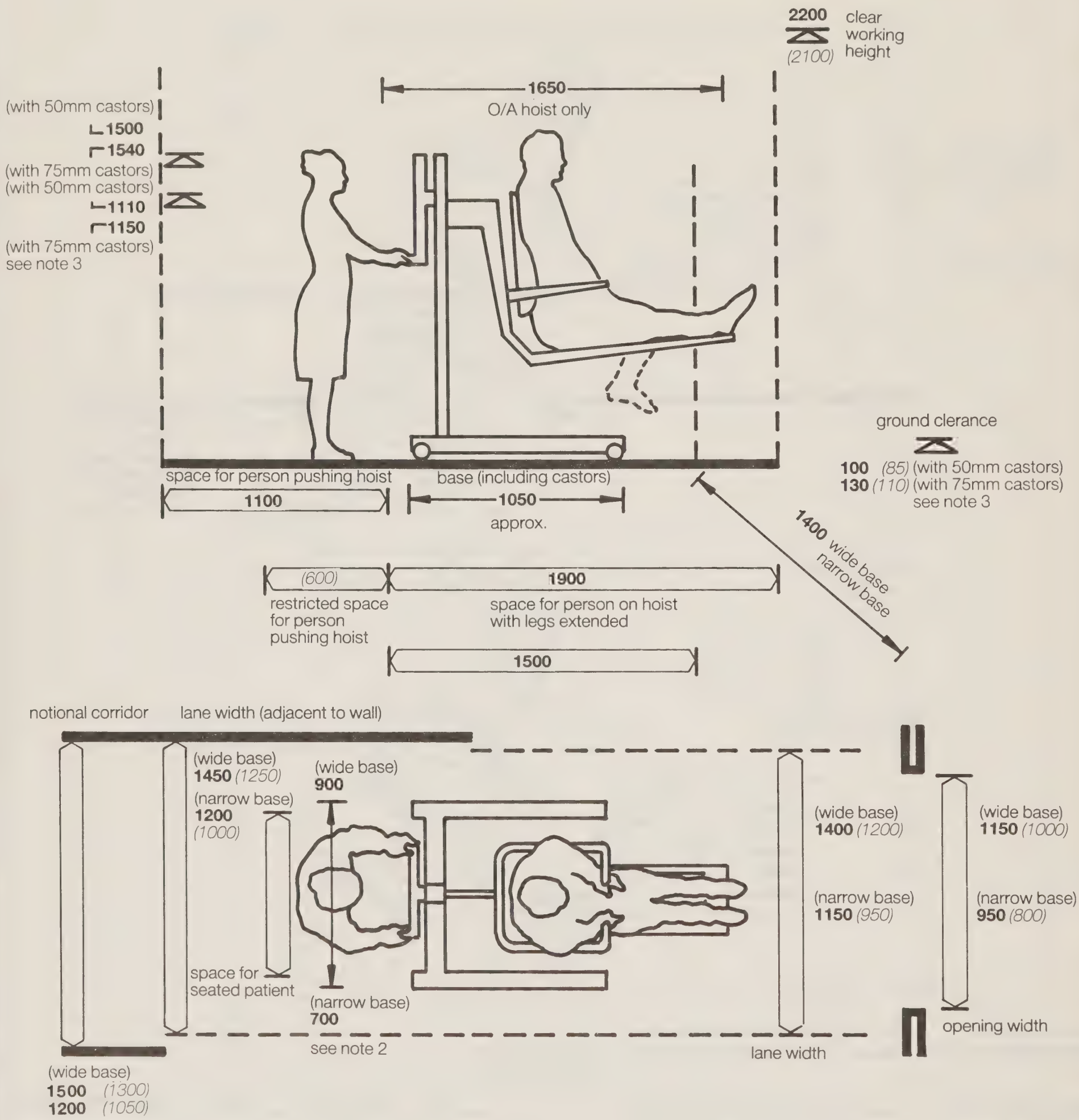


Fig.81

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. Chair type hoists are the type generally used for transporting patients in preferance to sling hoists (sling hoists are however essential for some patients). If sling hoists are used the space requirements for straighter movement will exceed the recommendations shown above.

2. The wider base is preferred because it is more stable in use.

3. The larger 75mm castors are preferred as manoeuvring heavy patients is easier. However greater floor clearance must be available under beds, baths, etc.

Activities:
Manoeuvring patient into and out of bath (access from head end of bath)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Patient Hoist (3)

Mobile chair hoist

Users:
2 or more nurses and patient

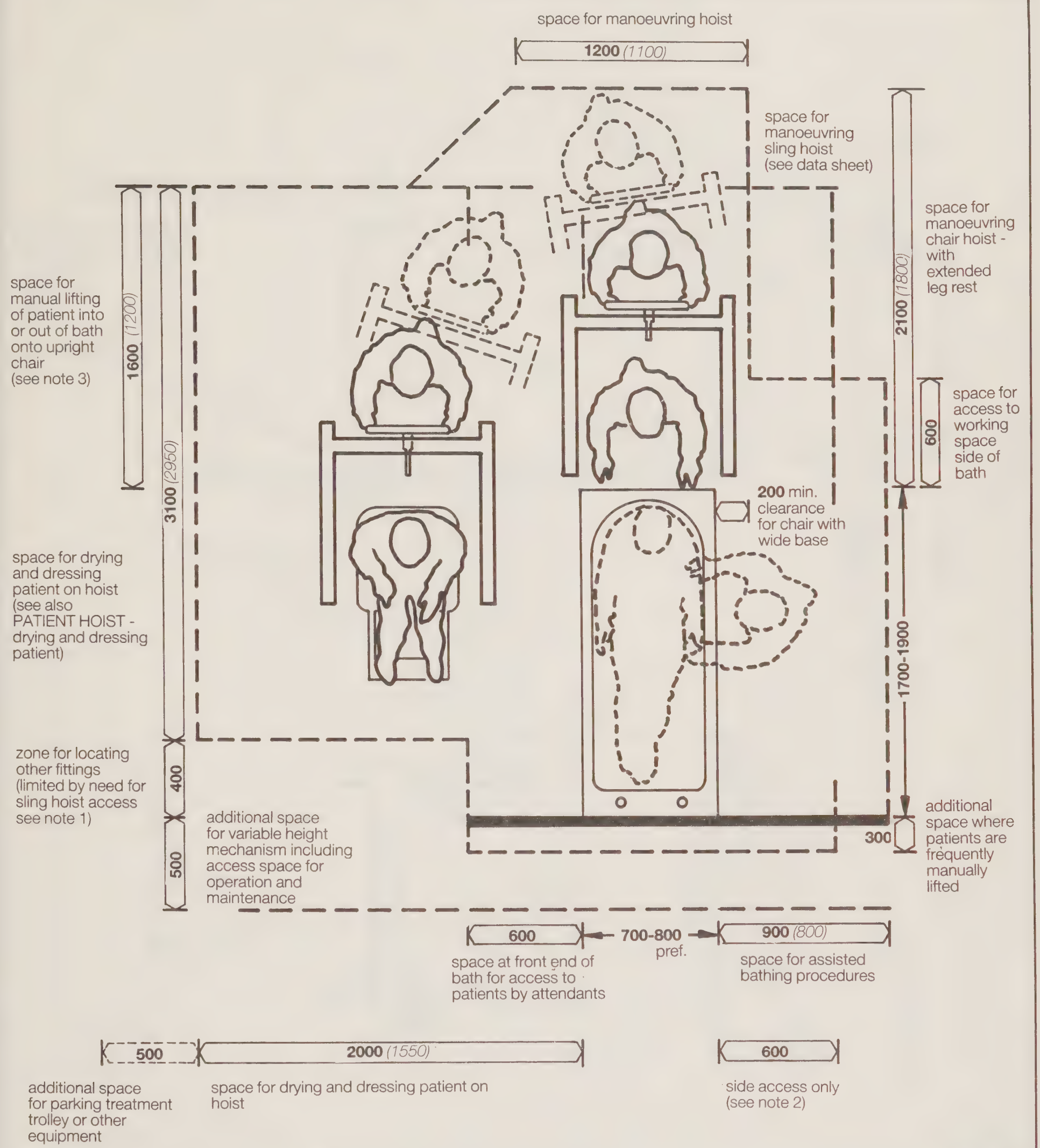


Fig.82

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes:

1. Assisted bathrooms should preferably provide space to use both CHAIR and SLING HOISTS. Space at head of bath should therefore accommodate manoeuvring of SLING HOIST.

2. Does not provide satisfactory workspace for large male or female assisting staff.

3. Add 300 *(200)* where space is to accommodate wheelchair.

Activities:
Alternative screened door arrangements to provide privacy for patients in bathrooms, toilets or other assisted facilities.

DHSS **Ergonomic data bank:**
Component user data sheet, not to scale

Door screen - single door

1000, 900 door sets (see note 1)

Users:
staff

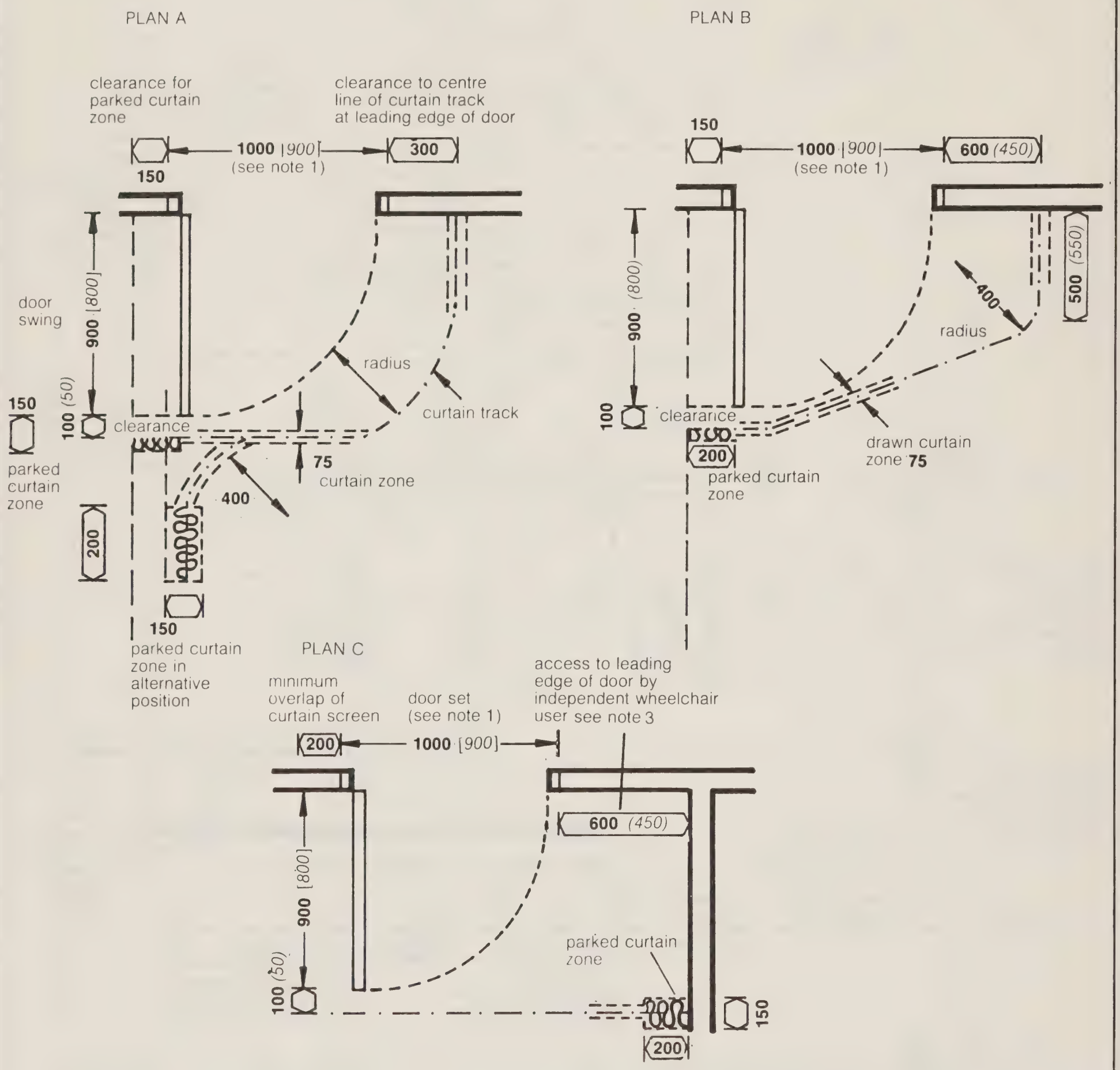


Fig.83

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. It is not recommended that door sets smaller than 900 wide be used in patient areas in health buildings. Minimum 1000 wide door sets are preferred.

2. The minimum clearance dimensions shown allow for ambulant circulation only.

3. The critical requirement is for independent wheelchair use in this case, and the space required for this exceeds (ie will therefore accommodate) the space needed for ambulant staff access. Even the restricted space near the leading edge of the door is adequate for this purpose.

Activities
General manual tasks.
Placing or retrieving items on shelf over worktop.

DHSS **Ergonomic data bank**
Component-user data sheet, not to scale

Worktop Bench

(with or without shelf over)

Users
Independent and assisted wheelchair users.

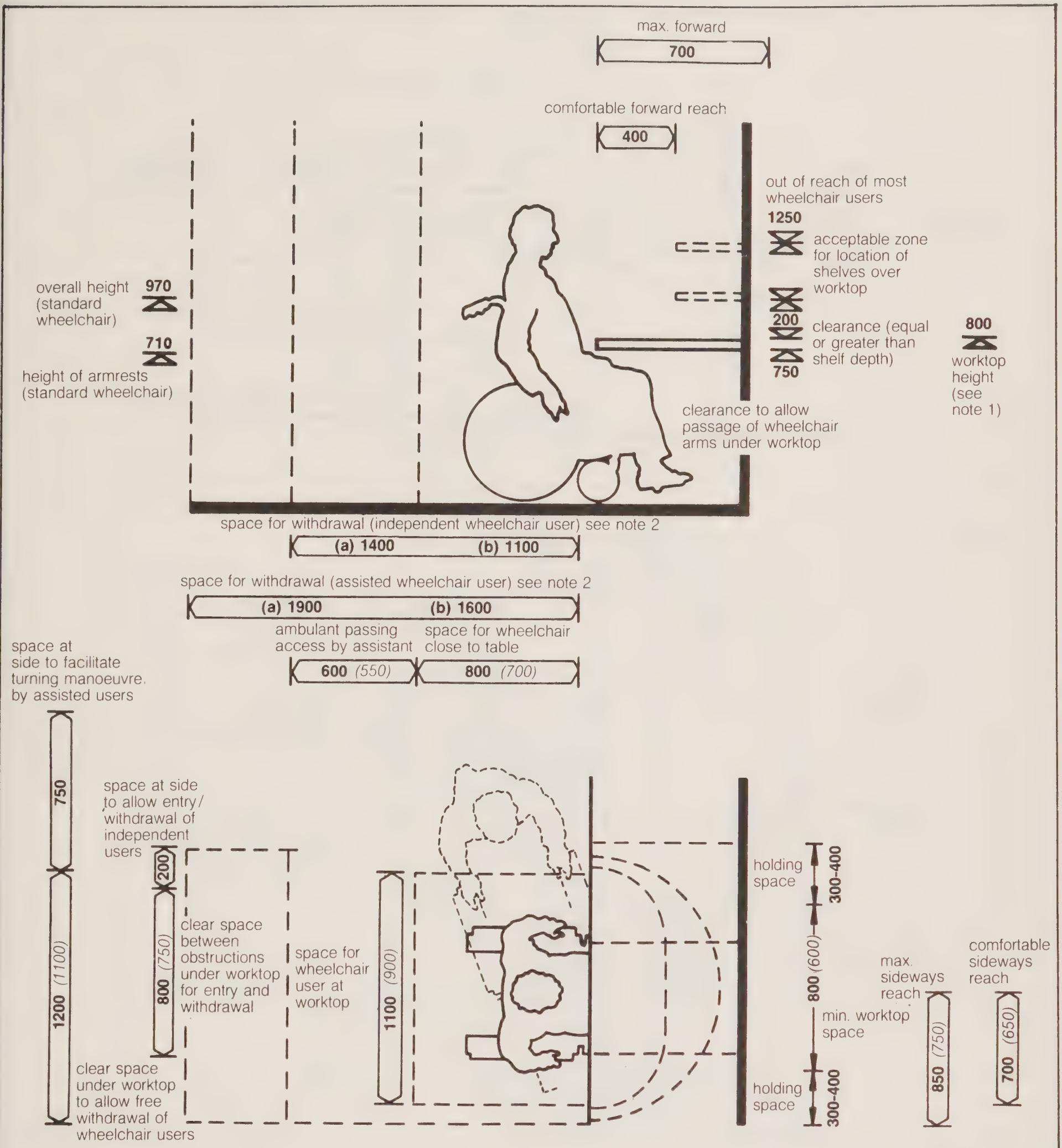


Fig.84

1350 (1300)

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Fitting heights to tasks is difficult in the case of wheelchair users as compromises are necessary to combat different wheelchair characteristics e.g. 800 worktop height is approx 50mm higher than user elbow height, therefore not satisfactory for small female users. A table height of 750 is preferable for smaller users but may not offer adequate clearance under the worktop. This can be dangerous in that hands or thighs may be pinched when approaching the worktop, which is critical where users suffer from sensory loss. Some consideration should however be given to a 750 high worktop as this can also be used by most seated ambulant users (but is less satisfactory for small ambulant females). This avoids the segregation of facilities for ambulant and wheelchair users.

2. (a) Refers to space required for the more difficult manoeuvre of going in and out of an underworktop space 800 wide. (b) Refers to conditions where full turning of the chair under the table is possible in at least one direction during entry or withdrawal.

Activities:
Storing and retrieving food

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Refrigerator
(wheelchair users)

Users:
Independent wheelchair users

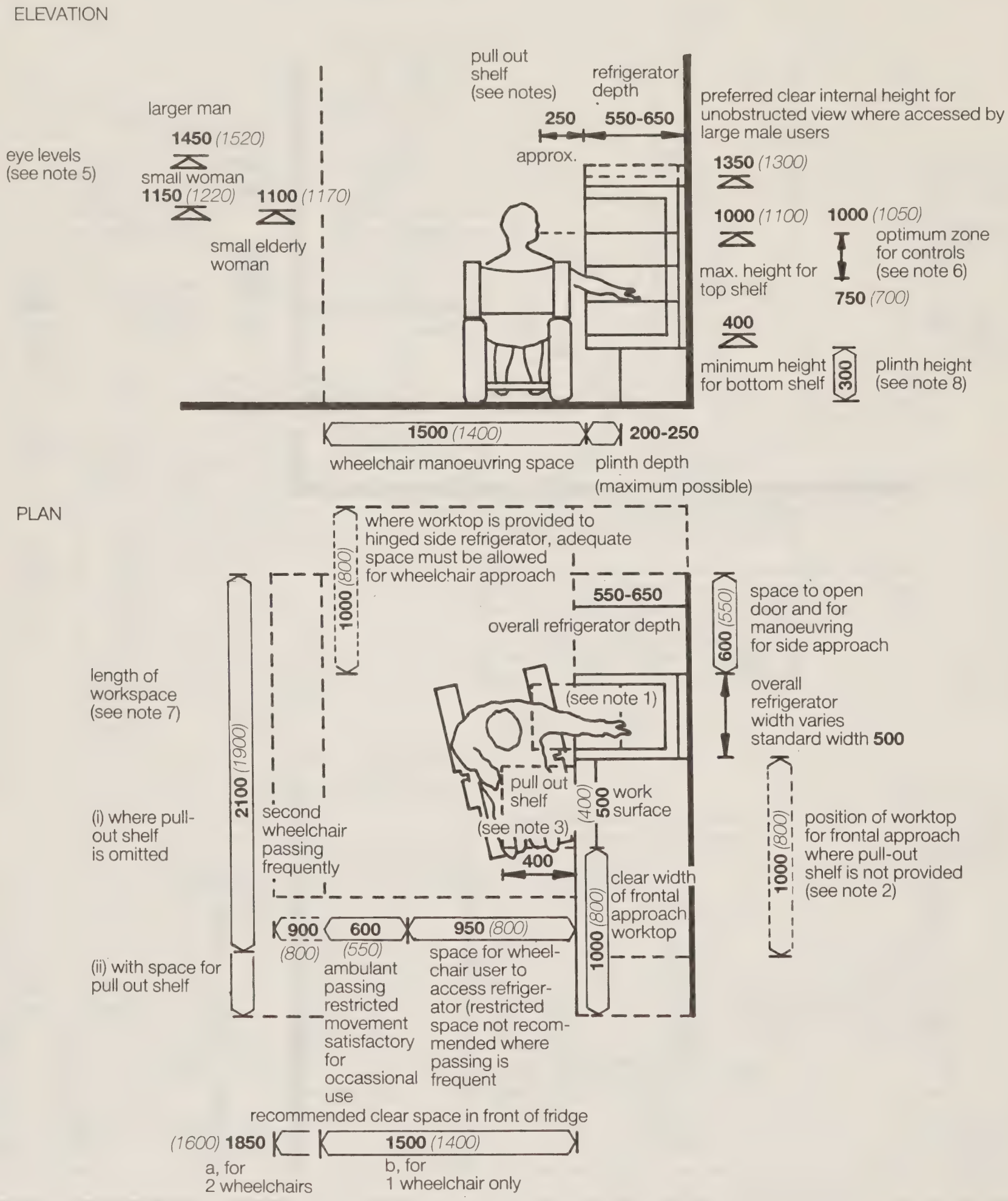


Fig.85

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. Refrigerator shelves should be pull-out and non-tip, also incorporating a safety stop to avoid accidents.

2. Where no pull-out shelf is provided there must be clear space under this worktop to enable wheelchair users to make a frontal approach directly to the side of the refrigerator. This will enable them to reach the backs of shelves easily when they are pulled out. Worktop adjacent to the pull out shelf should also permit frontal approach to the worktop.

3. An adjacent pull-out shelf for the deposit of articles taken from the refrigerator should be provided. Minimim dimensions 400 x 400, minimum height 750.

4. The refrigerator door should open 180°.

5. Bracketed dimensions () indicate eye levels where wheelchair is fitted with a deep cushion.

6. All controls should be located at the front of the refrigerator for easy access from the wheelchair.

7. Length of workspace depends on exact layout, facilities provided and access requirements, door opening characteristics etc. A workspace length under 1900 is very restrictive and smaller dimensions, although possible, cannot therefore be recommended.

8. The refrigerator should preferably be set on a plinth which will allow maximum unimpeded wheelchair foot rest penetration under the front. This will allow easier manoeuvring and access.

Activities:
Cooking by frying or boiling using hot plates (or rings - see note 3)

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Cooking Hob

Small

Users:
Wheelchair users

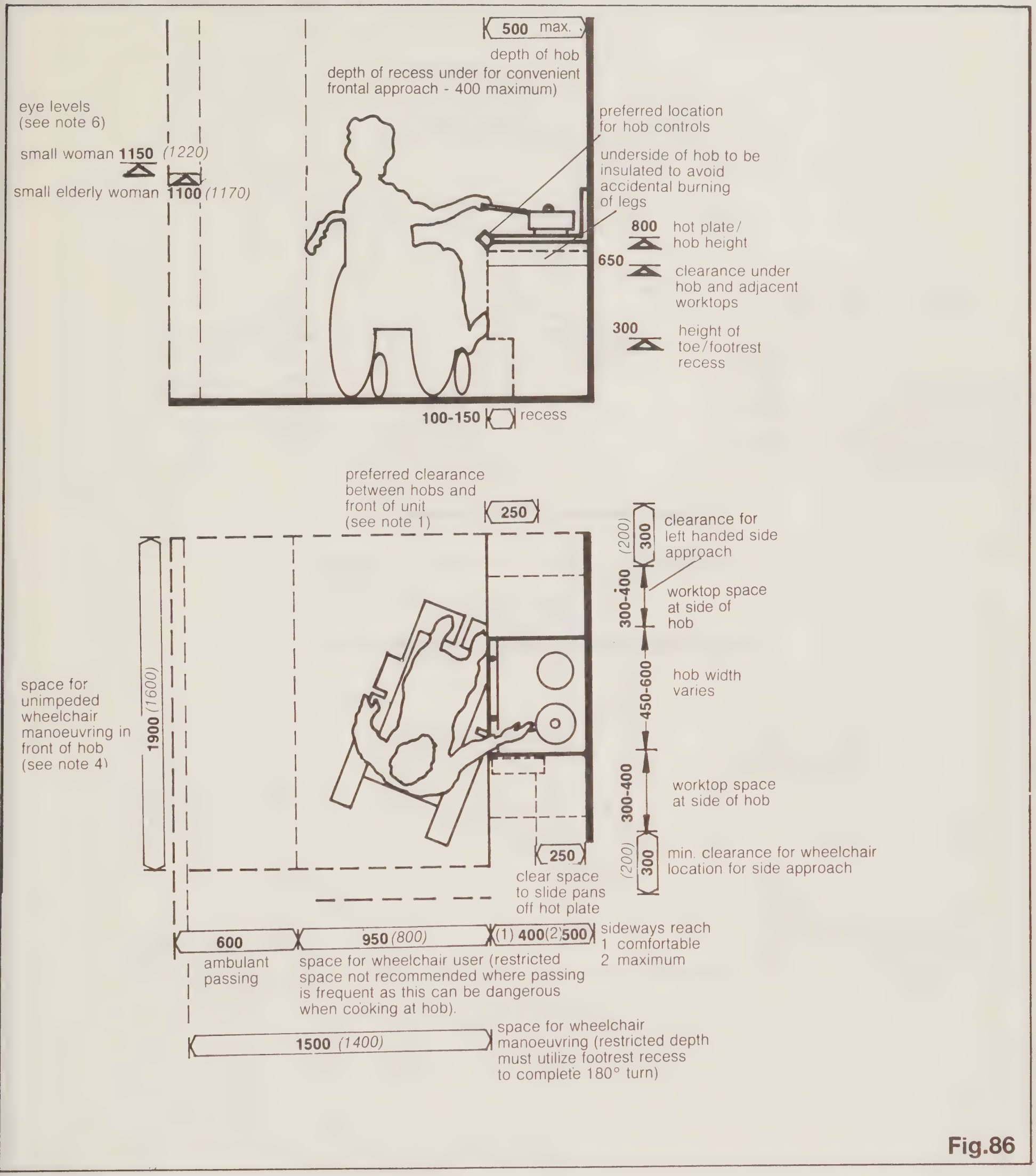


Fig.86

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Cooking hob must be flush with adjacent work surfaces.

2. Hot plates should preferably be arranged in a straight line to avoid risk of burning caused by reaching across plates/rings, also they should if possible be arranged at the rear of the work surface to provide space in front for associated preparation activities and to pull pans off plates/rings more safely when liquids are boiling.

3. Flush plates are more satisfactory as they allow pans to be slid across to work surfaces more freely. Spillage is particularly dangerous for persons working from a wheelchair, and is more likely where pans can catch on hob supports.

4. (1600) dimension is applicable where depth of space for convenient use can be greater than 1500.

5. Hob controls should be at hob level, preferably immediately in front of the unit. Controls should not be above a hob and should not be positioned so as to obstruct safe movement of boiling liquids.

6. Bracketed dimensions () indicate eye levels where wheelchair is fitted with a deep cushion.

Activities:
Rehabilitation - ironing clothes

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Ironing board 1

Hinged, drop-down fixed height or variable height

Users
Partially capable (including the elderly) standing or seated users

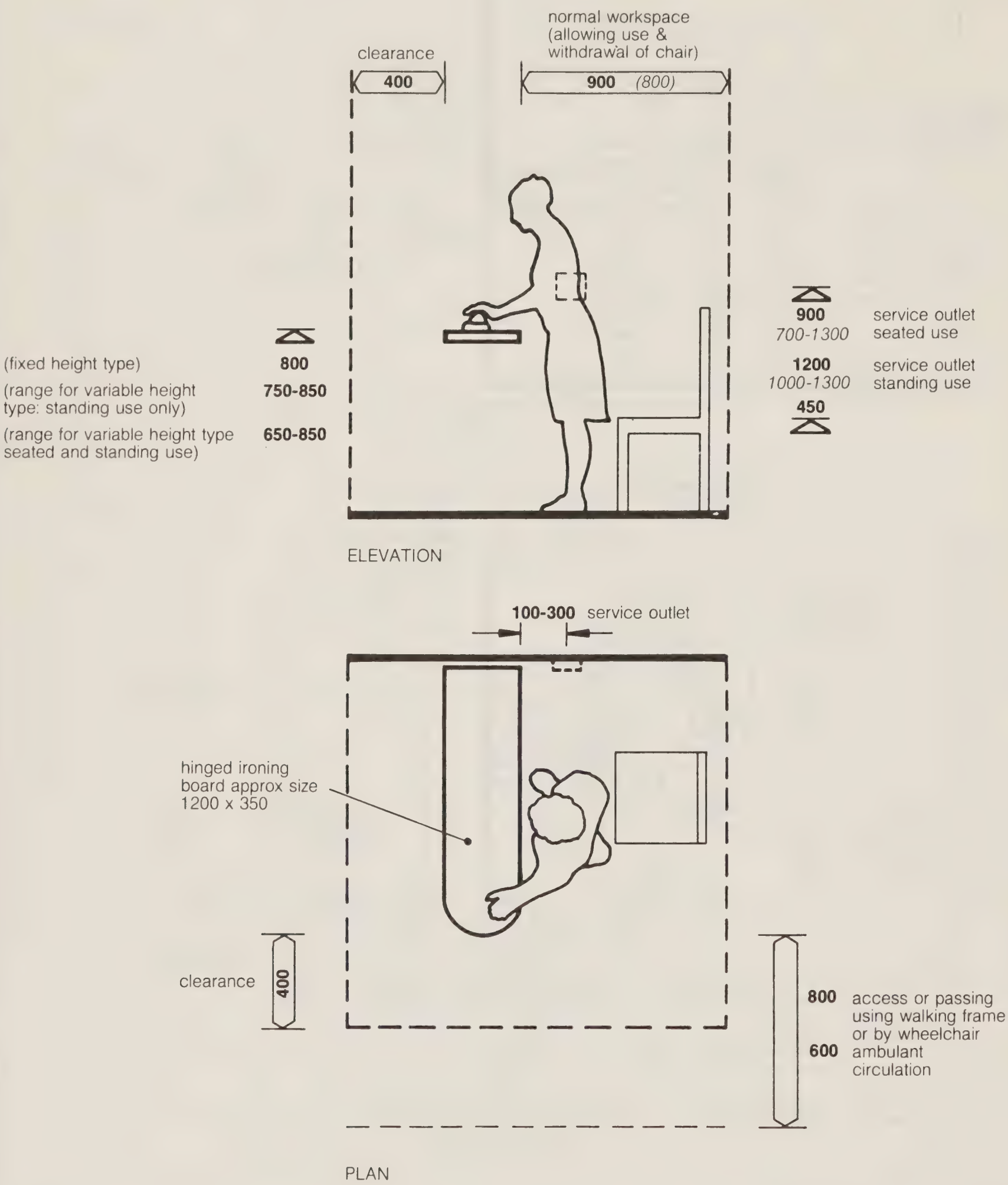


Fig.87

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Portable ironing boards tend to be unsteady and difficult to erect. Secure hinged, drop down boards with a variable height facility are preferred for the partially capable.

Activities:
Rehabilitation - ironing clothes

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Ironing board 2

Hinged, drop-down, fixed height or variable height.

Users
Assisted and independent wheelchair users

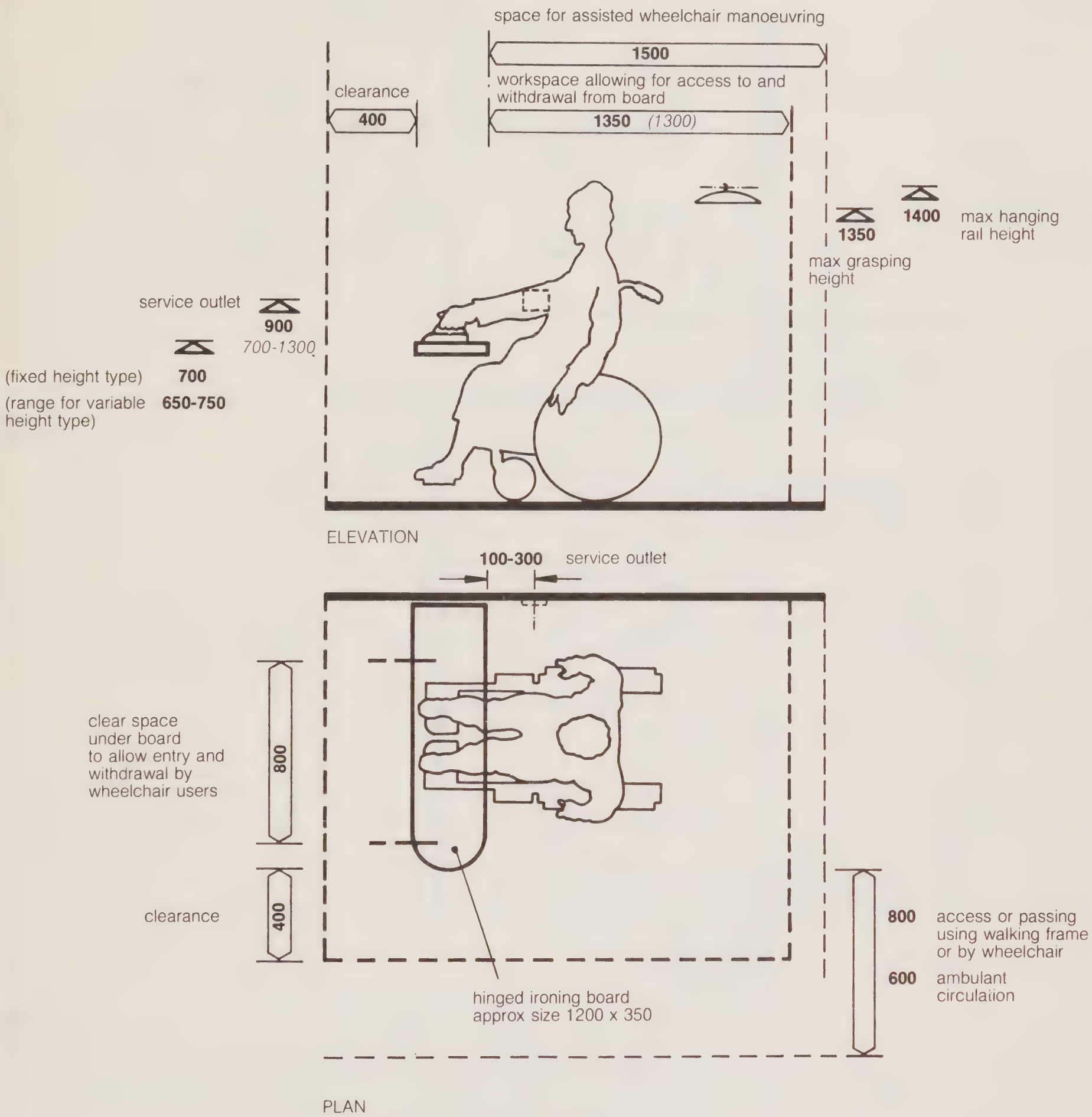


Fig.88

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Portable ironing boards tend to be unsteady and difficult to erect. Secure hinged, drop down boards with a variable height facility are preferred for the partially capable and wheelchair users.

Activities:
Cooking by baking or roasting

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Oven
small

Users:
Wheelchair users

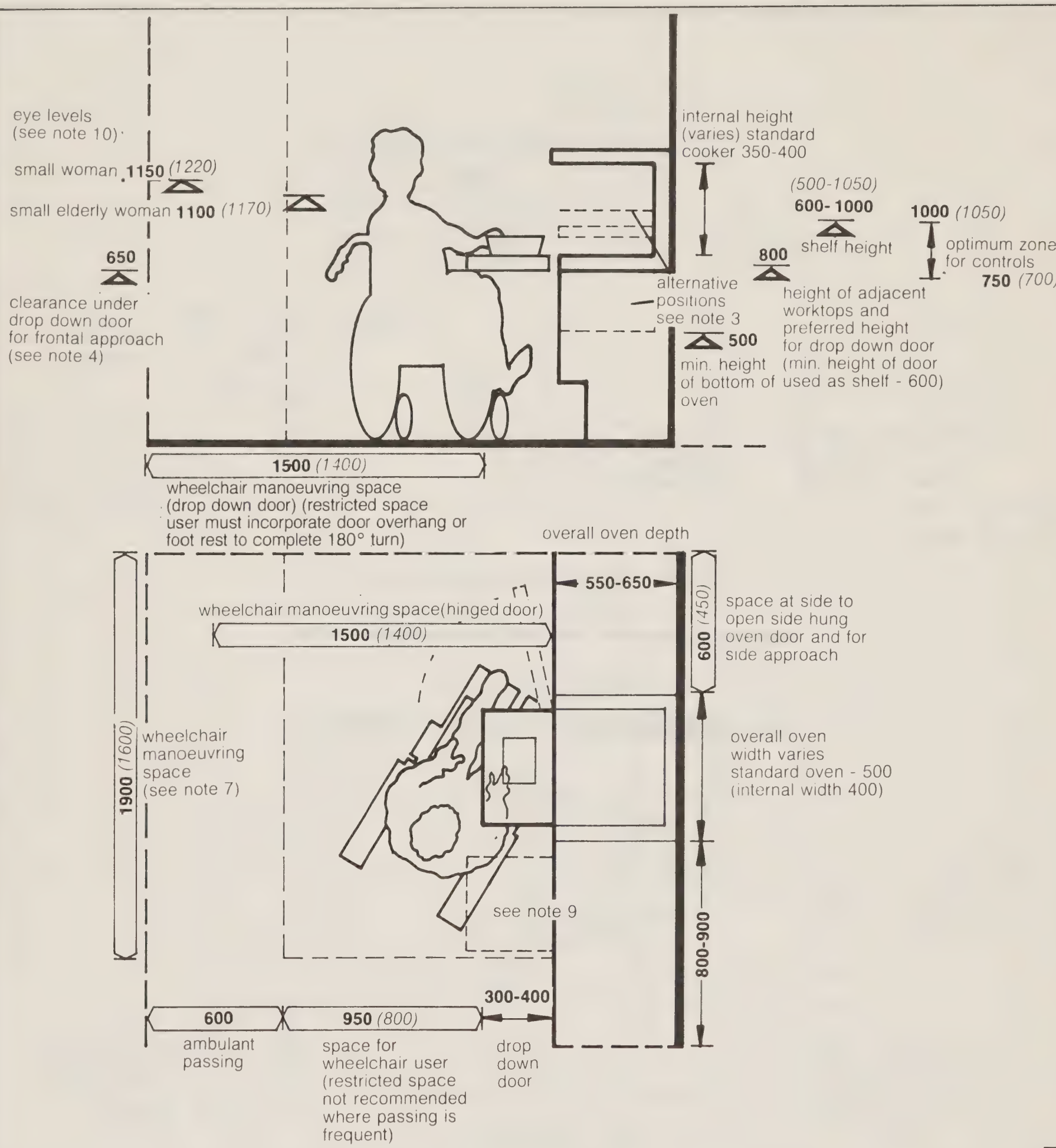


Fig.89

(1300)

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Oven shelves should be pull-out and non-tip incorporating a safety stop to avoic accidents. Full pull-out can however conflict with the usefulness of a drop down door, where this is provided (see note 2). In such cases pull-out shelf should incorporate a stop at 1/3 x the projection of the drop down door.

2. Ovens with drop down doors are generally preferred for wheelchair users as they provide a surface on which items can be temporarily held; but where shelves are not 'pull-out', user approach is restricted, also internal oven height is limited by the need to minimize oven door projection (400 max). See also note 1 above.

3. The higher position is more satisfactory where the oven is also to be accessed by ambulant users.

4. Face of drop down door also bottom edge of side hung door at or near 650 should be insulated to minimize the danger of burning users' legs.

5. Where a grill is incorporated heating element should preferably not be higher than 1100 (1150) and grilling plane not lower than 600, but preferably at or near worktop height.

6. Worktop should be on side of leading edge of hinged door, can be parallel or at 90° to oven position, but clear width must be available to facilitate wheelchair approach.

7. Dimension depends upon type of oven door. A workspace under 1600 is very restrictive and smaller dimensions, although possible, cannot therefore be recommended.

8. Oven door for hinged door should preferably open 180°. Essential where bottom of door is lower than 650 above floor level.

9. When oven has hinged door, there should be an adjacent pull out shelf. Minimum dimensions 400 x 400 minimum height of 750 (650).

10. Bracketed dimensions () indicate eye levels where wheelchair is fitted with a deep cushion.

Activities
General kitchen use

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Sink 1

Users
Wheelchair users

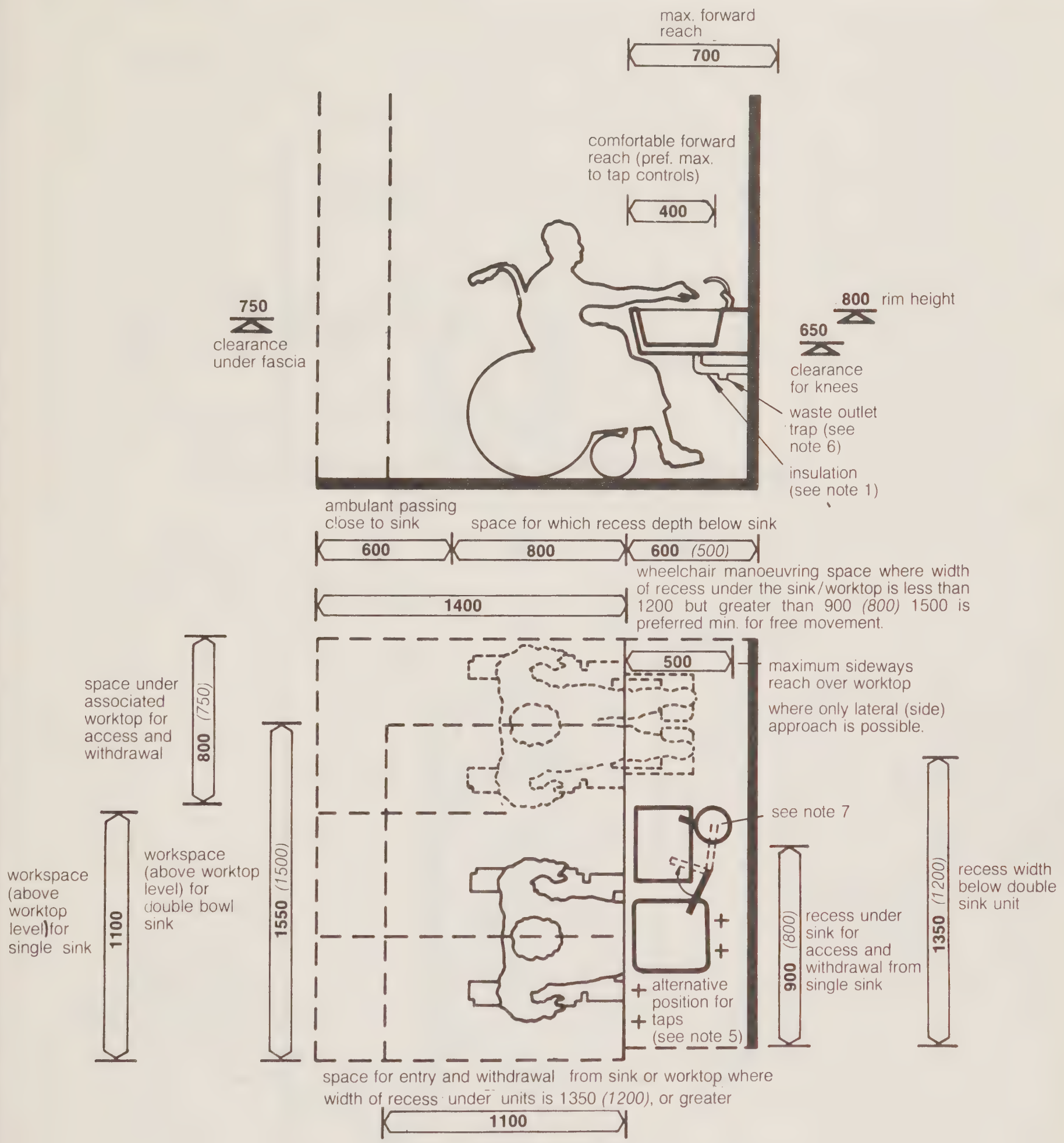


Fig.90

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. The underside of sink and exposed pipes must be insulated because of danger of the thighs and knees contacting hot surfaces.

2. The sink should be as deep as possible (140) to minimise spillage.

3. The sink overflow must always be provided as disability may affect tap control.

4. Deep fascias to units should be avoided as they impede wheelchair arm rest and user approach to the sink.

5. Selection and positioning of tap controls should be given careful consideration. Tap controls should preferably be located away from the swivel arm mixer to ensure that access is not obstructed by cascading water. (For users with reach limitations tap controls could be positioned under the drainer rim, provided they do not impede user approach).

6. Waste outlet trap should be positioned near back wall to minimise obstruction to knee access under sink or located in duct (see HTM 64).

7. An adjacent flat surface within reach of a swivel arm mixer is an important requirement for filling saucepans and kettles.

Activities:
Rehabilitation - laundry work using lateral approach see also Sink, laundry work using frontal approach

DHSS | **Ergonomic data bank:**
Component-user data sheet, not to scale

Sink 2

Laundry
(200-250 deep)

Users
Wheelchair disabled

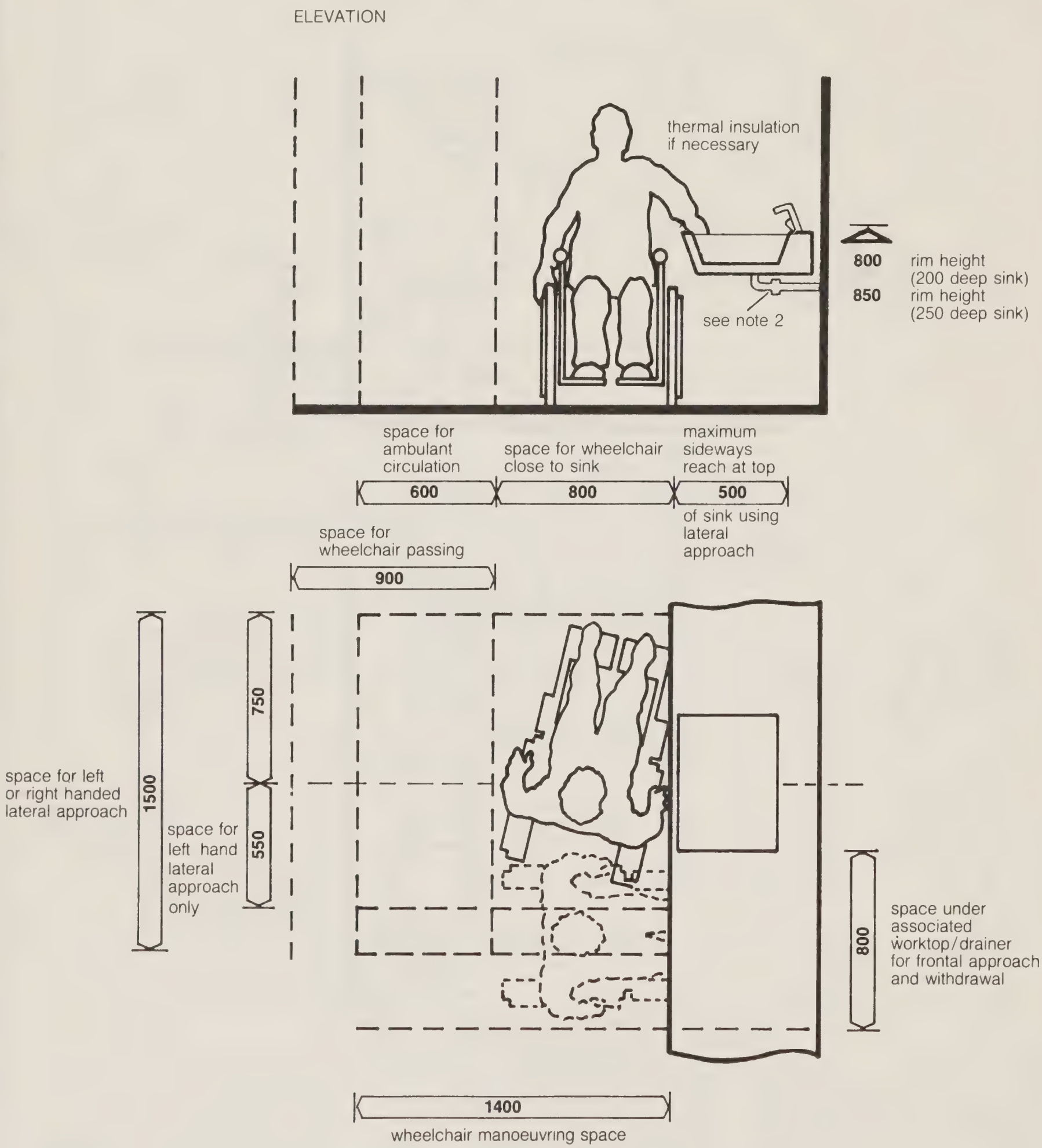


Fig.91

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Laundry work requires a deeper sink than is normally required for general kitchen activities - - i.e. 200-250 mm deep as opposed to 140-150 mm. Consequently its use from the wheelchair presents problems which make designing a satisfactory workstation very difficult. In trying to provide adequate knee access space below the sink, the rim height becomes excessively high, and vice versa.

2. Waste outlet and trap should be positioned as near the back wall as possible to minimize obstruction to knees under sink. Waste and hot water pipes should be insulated to avoid injury to legs or located in duct (see HTM 64).

Activities:
Rehabilitation - laundry work using frontal approach see also Sink laundry work using lateral approach

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Sink 3

Laundry
(200 - 250 deep)

Users
Wheelchair disabled

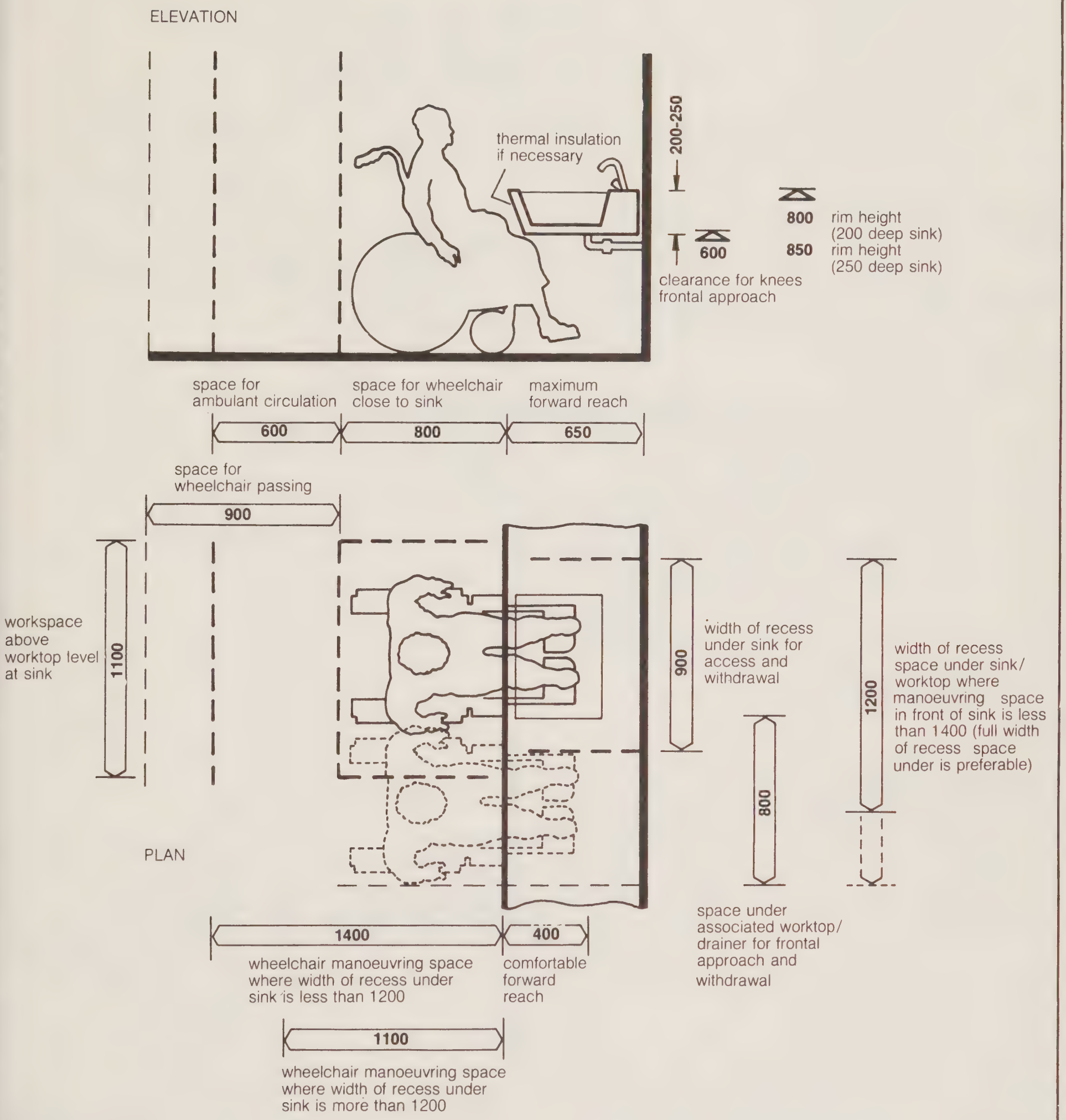


Fig.92

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Laundry work requires a deeper sink than is normally required for general kitchan activities - i.e. 200-250 mm deep as opposed to 140-150mm. Consequently its use from the wheelchair presents problems which make designing a satisfactory workstation very difficult. In trying to provide adequate knee access space below the sink the rim becomes excessively high and vice versa.

2. For some users it may not be practicable to attempt providing for frontal approach although it provides a less satisfactory working posture, planning in this case should cater for a lateral approach only. See also Sink, laundry work using lateral approach.

3. Waste outlet and trap should be positioned as near the back wall as possible to minimize obstruction to knees under sink. Waste and hot water pipes should be insulated to avoid injury to legs or located in duct (see HTM 64).

Activities
Sitting and eating a meal, including approach and withdrawal from table and service access

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Table 1
Dining

Users
Independent and assisted wheelchair users

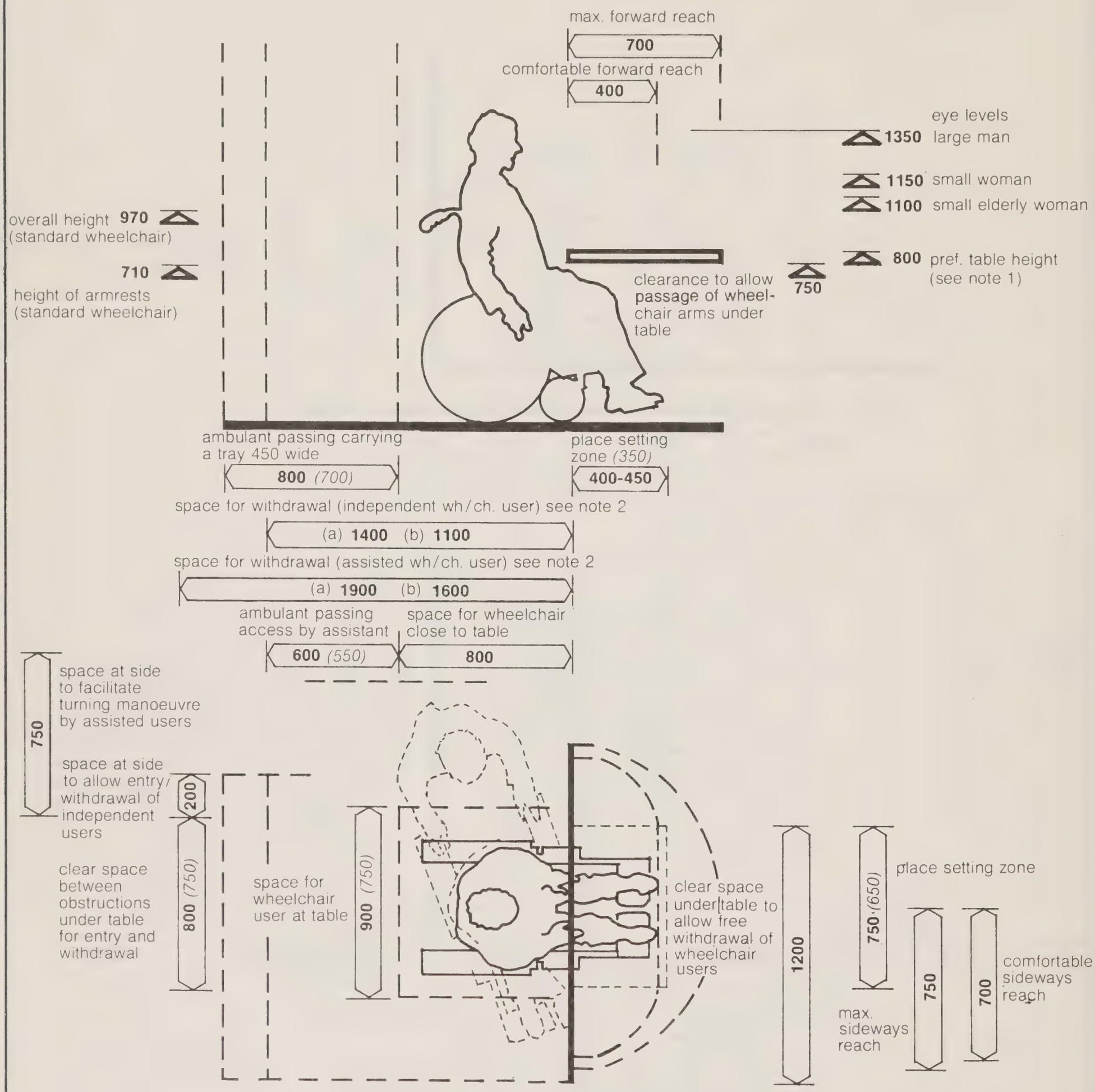


Fig.93

1350 (1300)

Preferred minimum — *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. The ergonomic principles involved are similar to those for normal dining chair/table combinations, except that some compromises are necessary to combat wheelchair dimensional characteristics e.g. table height is approx. 50mm higher than user elbow height and therefore not satisfactory for smaller female users. Alternatively a table height of 750 is preferable but may not offer adequate clearance under the table, or be dangerous in that hands or thighs may be pinched when approaching the table - which is critical where users suffer from sensory loss. Some consideration should however be given to a 750 high table as this can also be used by ambulant and wheelchair users (but is less satisfactory for small females). This avoids the segregation of facilities for ambulant and wheelchair users.

2. Space for entry and withdrawal:

(a) refers to space required for more difficult manoeuvre of going in and out of an undertable space 800 wide. This is a commonly occuring requirement e.g. for a 1000 square table where it is necessary to reverse out of the undertable space before turning vice versa.

(b) refers to conditions where full turning of the chair under the table is possible in at least one direction during entry or withdrawal.

Activities
Approach to and withdrawal from dining table

Use of dining table

(see also TABLE wheelchair users data sheet)

DHSS **Ergonomic data bank:**
Component-data sheet, not to scale

Table 2

Dining (square)

Users
assisted and independent wheelchair users

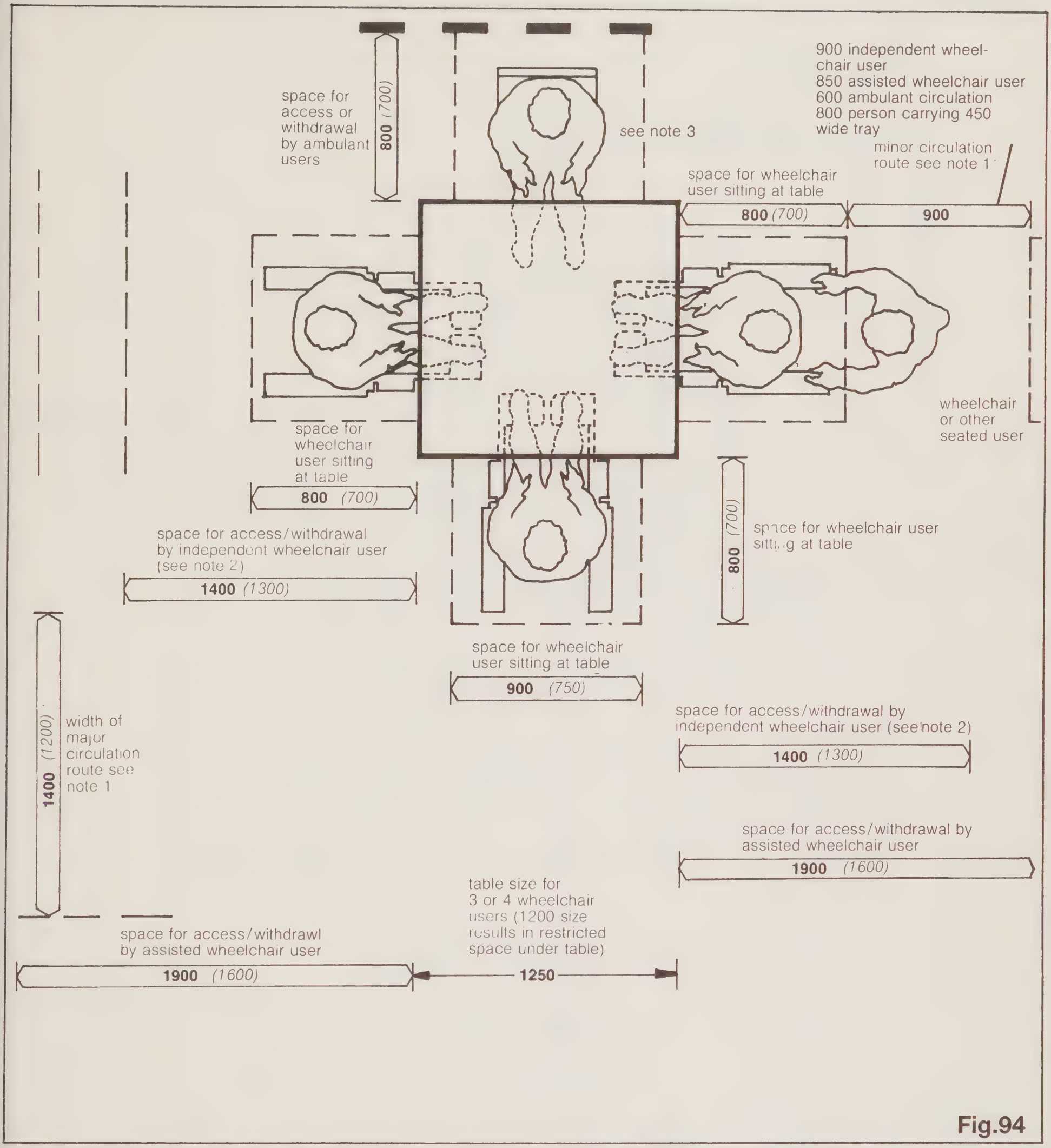


Fig.94

1350 *(1300)*

Preferred minimum — *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. The width of major circulation routes is dependent on the traffic conditions i.e. numbers and frequency of wheelchair and trolley and ambulant persons using the route e.g. Where space for the frequent passing of 2 independent wheelchair users is required, the width of circulation route is 900 + 900 = 1800. The 1400 (1200) dimension given above relates to the minimum requirements of ambulant serving staff only.

2. The (1300) dimension applies only where clear width under table is 1000 or greater. Where access/withdrawal is unimpeded by table legs (i.e. a clear width under table in excess of 1200) the depth of space can be reduced to an absolute minimum of 1100.

3. It is not economical or convenient to position wheelchair users in positions backed by a wall. Therefore, this position should be used by an ambulant person. Manoeuvring should preferably make use of space used generally for circulation.

Activities
Approach to and withdrawal from dining table

Use of dining table

(See also TABLE wheelchair) users data sheet

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Table 3

Dining (square)

Users
assisted and independent wheelchair users

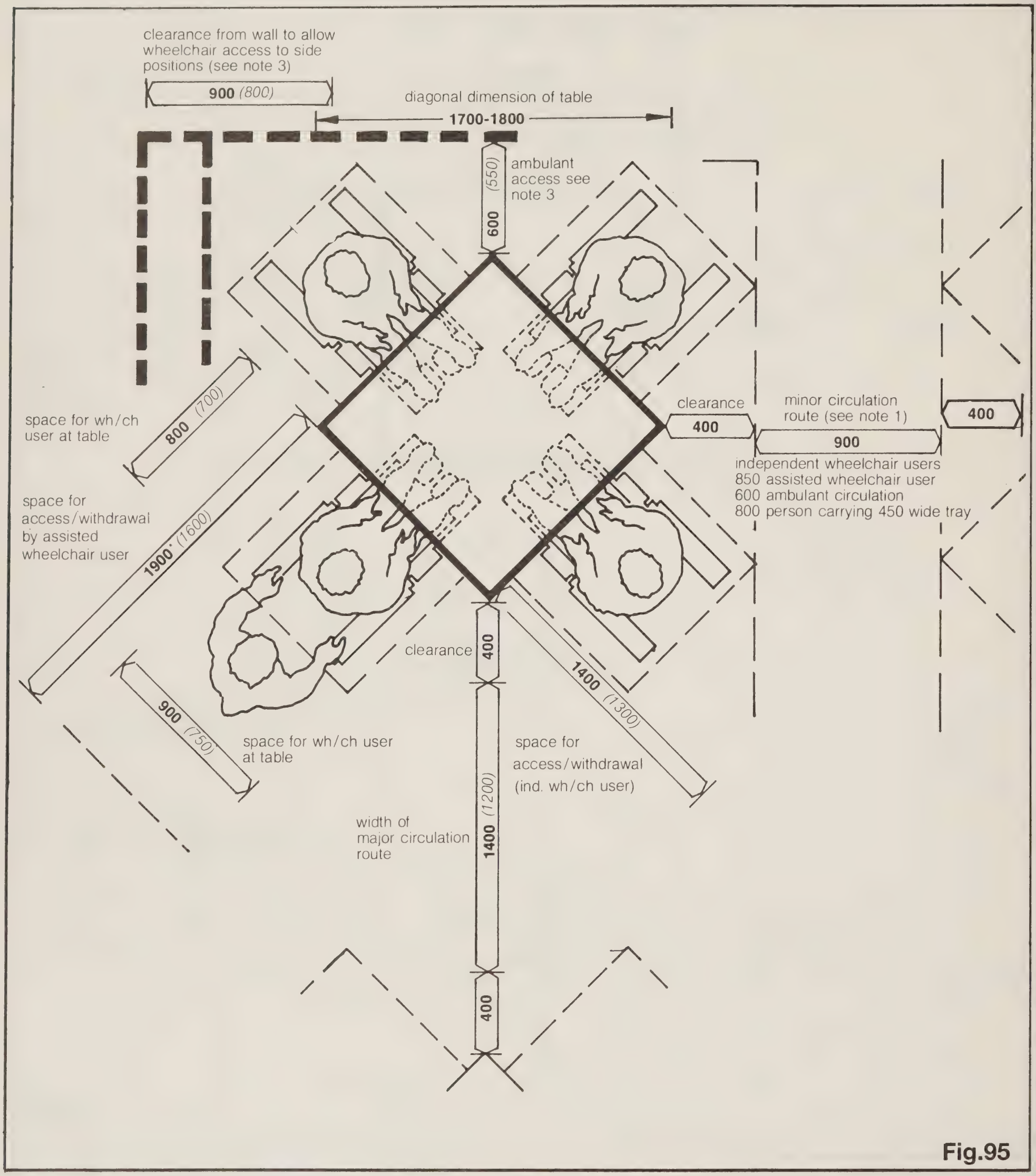


Fig.95

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. The width of major circulation routes is dependent on the traffic conditions i.e. numbers and frequency of wheelchair and trolley and ambulant persons using the route. e.g. Where space for the frequent passing of 2 independent wheelchair users is required the width of circulation is 900 + 900 = 1800 The 1400 (1200) dimension given above relates to the minimum requirements of ambulant serving staff only.

2. The recommended clear width of space under the table, between legs is 1500 (1400) i.e. greater or equal to the functional length of table top. This requirement and consequent leg displacement is advantageous in that it permits tables to be stacked for storage.

3. Where space to access side positions in a corner table accommodates wheelchair users, then restricted manoeuvring space is available for an independent wheelchair user to access the corner position. However, this will be difficult and cannot therefore be recommended. Generally wheelchair tables should not be positioned in the corner of a room.

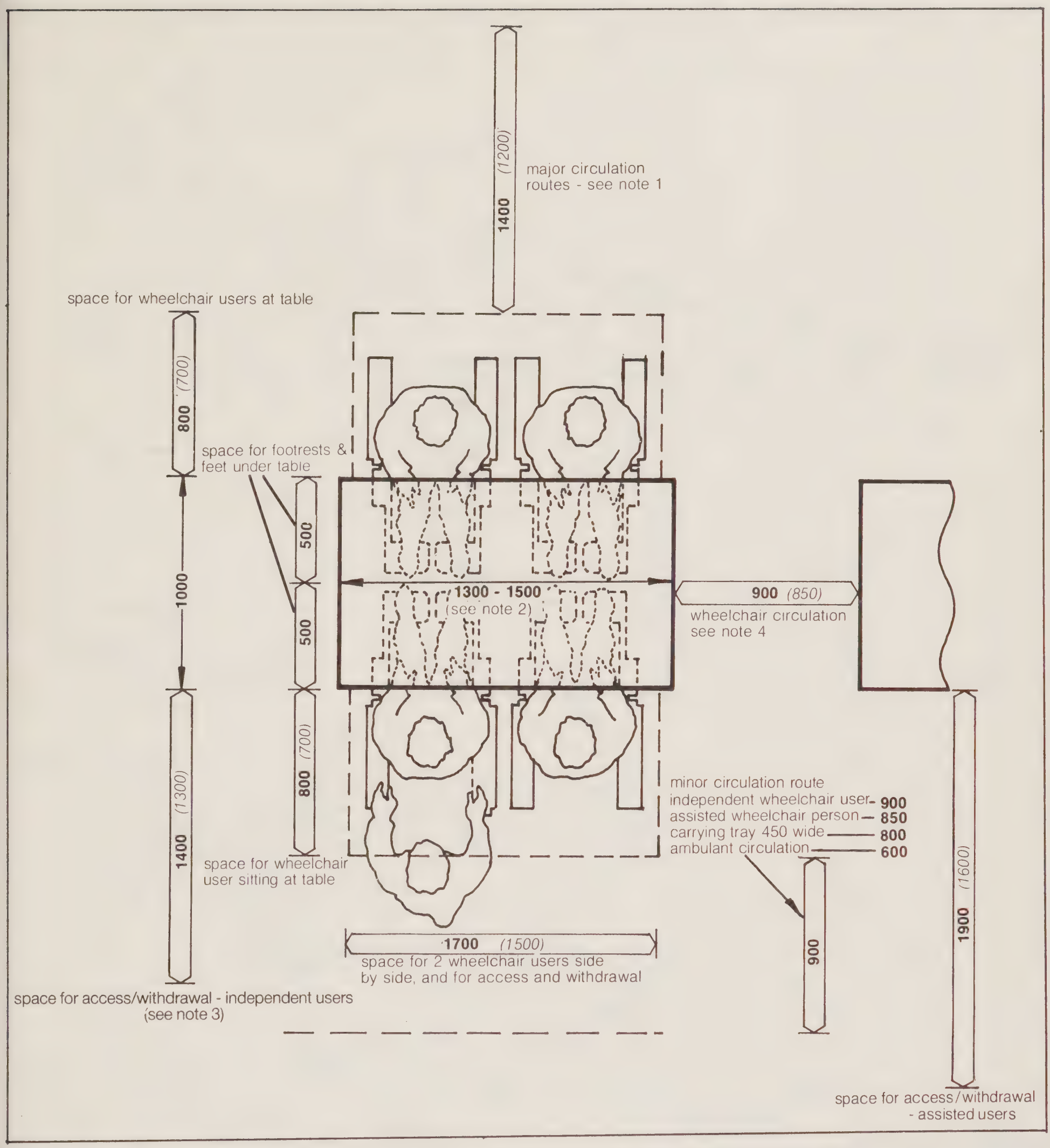
Activities
Approach to and withdrawal from dining table
Use of dining table
(see also TABLE wheelchair users data sheet

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Table 4

Dining (rectangular)

Users
assisted and independent wheelchair users



1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. The width of major circulation routes is dependent on the traffic conditions i.e. numbers and frequency of wheelchair and trolley and ambulant persons using the route. e.g. Where space for the frequent passing of 2 independent wheelchair users is required, the width of circulation route is 900 + 900= 1800.

The 1400 (1200) dimension given above relates to the minimum requirements of ambulant serving staff only.

2. The recommended clear width of space under the table between legs is 1500 (1400) i.e. greater or equal to the functional length of table top. This requirement and consequent leg displacement is advantageous in that it permits tables to be stacked for storage.

3. The (1300) dimension applies only where the clear width under the tables is 1000 or greater. Where access/withdrawal is impeded by table legs (i.e. a clear width under table in excess of 1200) the depth of space can be reduced to an absolute minimum of 1100. However, this lesser dimension should not be used where 2 wheelchair users frequently use the table side by side as shown above.

4. 1000 (950) is preferred for frequent movement by independent wheelchair users between several tables in a large dining room. Movement past a single pair of tables can be achieved in 800 but movement is very restricted.

Fig.96

Activities:
Access to and use of dining tables and chairs (self service and clearing by catering staff)

DHSS · **Ergonomic data bank:**
Component user data sheet, not to scale

Table 5
Dining (rectangular)

Users:
Fully and partially capable adults

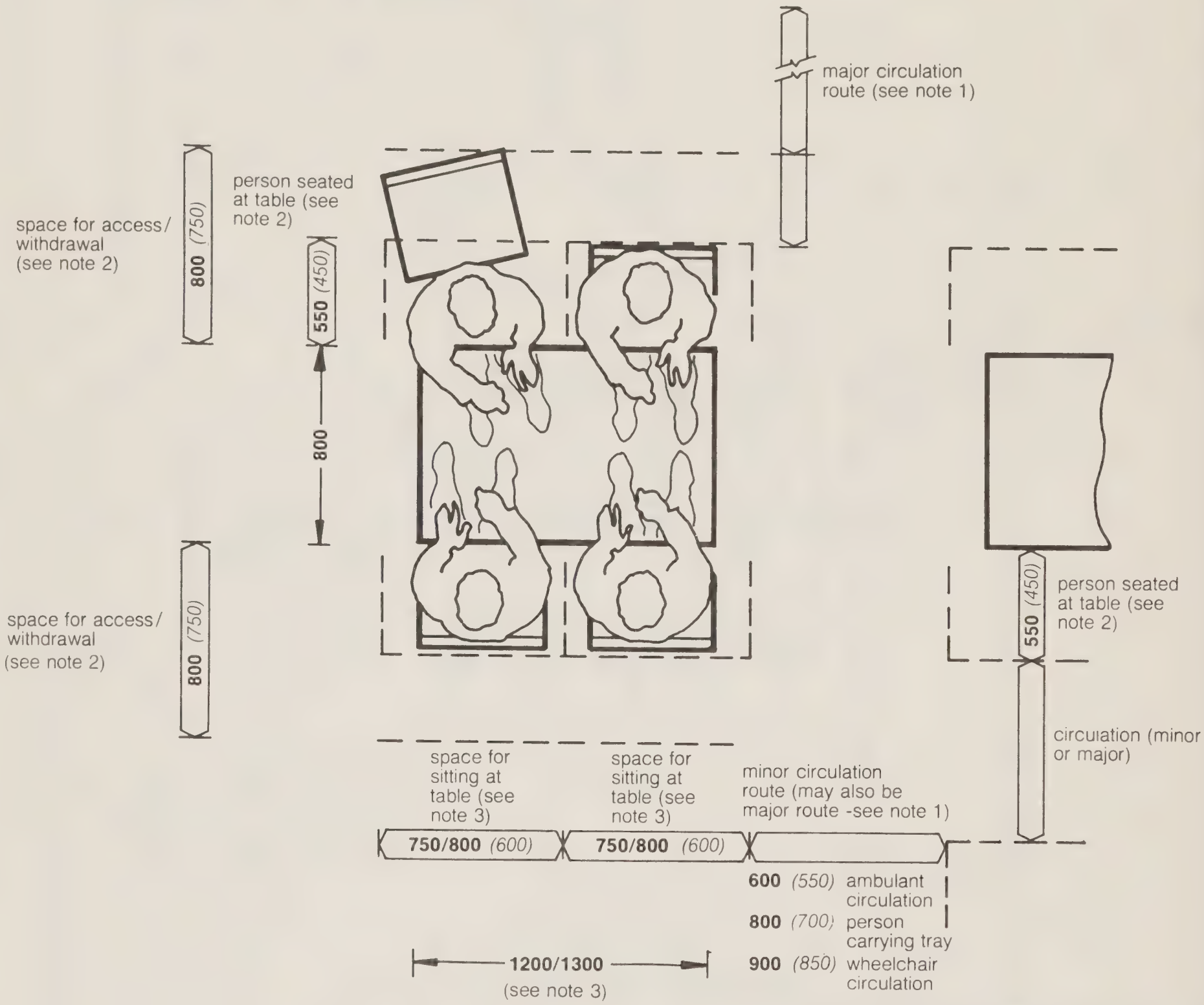


Fig.97

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

1. Width of major circulation routes dependent on traffic conditions ie the number and frequency of people using a route, the frequency of passing conditions occuring and need to move equipment (eg width of route allowing frequent passing of 3 people carrying trays = 800 + 800 = 1600. 1600 also allows infrequent passing of wheelchair user and person carrying a tray (eg 900 (700) etc) Width of minor routes - is dependent on number and frequency of people using the route and the possible need to move equipment. N.B. The drawings above do not allow for circulation between two back to back users withdrawn from table.

2. Where upholstered chairs are used space for person seated at table should be increased from 550 (450) to 600 (650) and space for withdrawal from 800 (750) to 900 (800).

3. A reduction in width of space for person sitting at table from 800 to 750 is acceptable with a 1200 width table. The restricted dimension (600) is applicable where passing in infrequent. The larger table length of 1300 is preferred for debilitated or disabled users. The table width of 900 is more satisfactory where wheelchair users have to be occasionally accommodated.

Activities:
Access to and use of dining tables and chairs (self service and clearing up by catering staff).

DHSS **Ergonomic data bank:**
Component user data sheet, not to scale

Table 6
Dining (Square)

Users:
Fully & partially capable adults

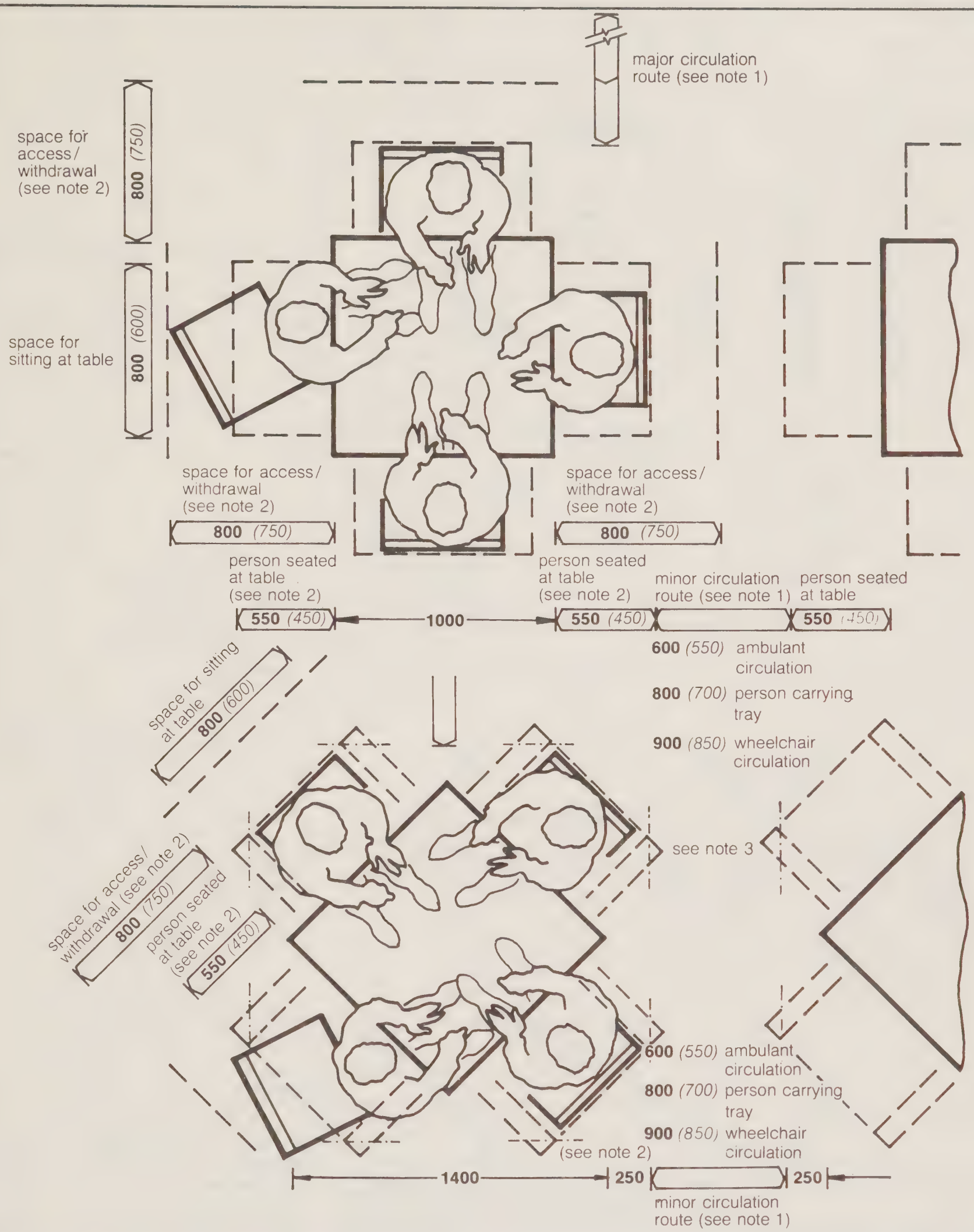


Fig.98

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Width of major circulation routes dependent on traffic conditions ie the number and frequency of people using a route, the frequency of passing conditions occuring and need to move equipment (eg width of route allowing frequent passing of 2 people carrying trays = 800 + 800 = 1600. 1600 also allows infrequent passing of wheelchair user and person carrying a tray ie 900 - (1700) etc) Width of minor routes - is dependent on number and frequency of people using the route and the possible need to move equipment. N.B. The drawings above do not allow for circulation between two back to back users withdrawn from table.

2. Where upholstered chairs are used space for person seated at table should be increased from 550 (450) to 600 (500) and space for withdrawal from 800 (750) to 900 (800). Also for angled table arrangement 250 dimension between circulation space and corner of table should be increased to 300 for upholstered chair

3. As significant arm movements take place forward of chair backrest it is possible to overlap user space for diners and circulation space in the angled table arrangement. It is recommended therefore that the circulation widths relate to the restricted (600) width of space for diners.

Activities:
Access to and use of dining tables and chairs (self service and clearing up by catering staff).

DHSS **Ergonomic data bank:**
Component user data sheet, not to scale

Table 7
Dining (round)

Users:
Fully & partially capable adults

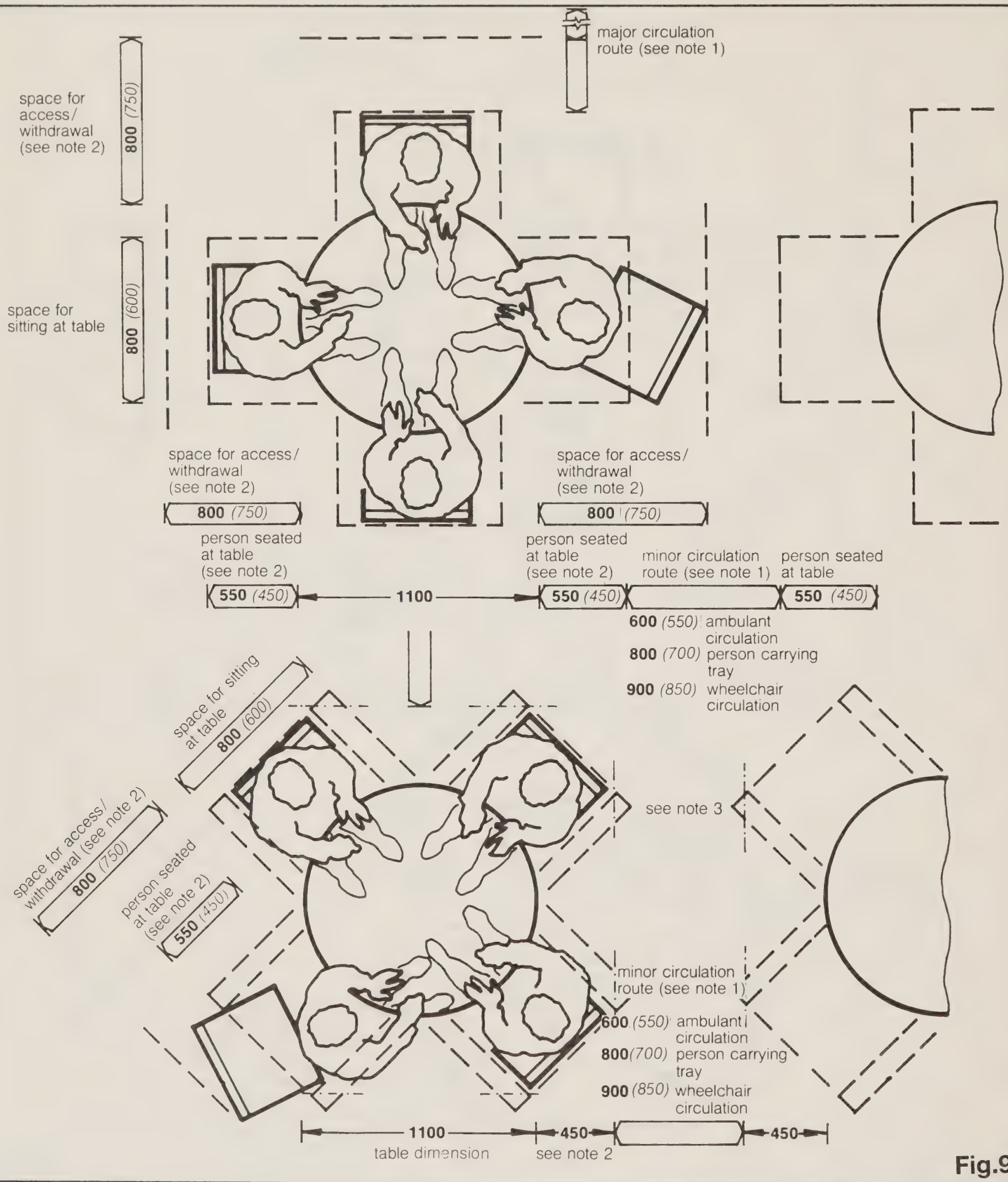


Fig.99

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Width of major circulation routes - dependent on traffic conditions ie the number and frequency of people using a route, the frequency of passing conditions occuring and need to move equipment (eg width of route allowing frequent passing of 2 people carrying trays = 800 + 800 = 1600. 1600 also allows infrequent passing of wheelchair user and person carrying a tray ie 900 - (1700) etc) Width of minor routes - is dependant on number and frequency of people using the route and the possible need to move equipment. N.B. The drawings above do not allow for circulation between two back to back users withdrawn from table.

2. Where upholstered chairs are used space for person seated at table should be increased from 550 (450) to 600 (500) and space for withdrawal from 800 (750) to 900 (800). Also for angled table arrangement 450 dimension between circulation space and corner of table should be increased to 500 for upholstered chair.

3. As significant arm movements take place forward of chair backrest it is possible to overlap user space for diners and circulation space in the angled table arrangement It is recommended therefore that the circulation widths relate to the restricted (600) width of space for diners.

Activities:
Sitting and eating a meal, including user and service access

DHSS **Ergonomic data bank:**
Component data sheet, not to scale

Table & Chair

Upright

Users:
Fully and partially capable adults

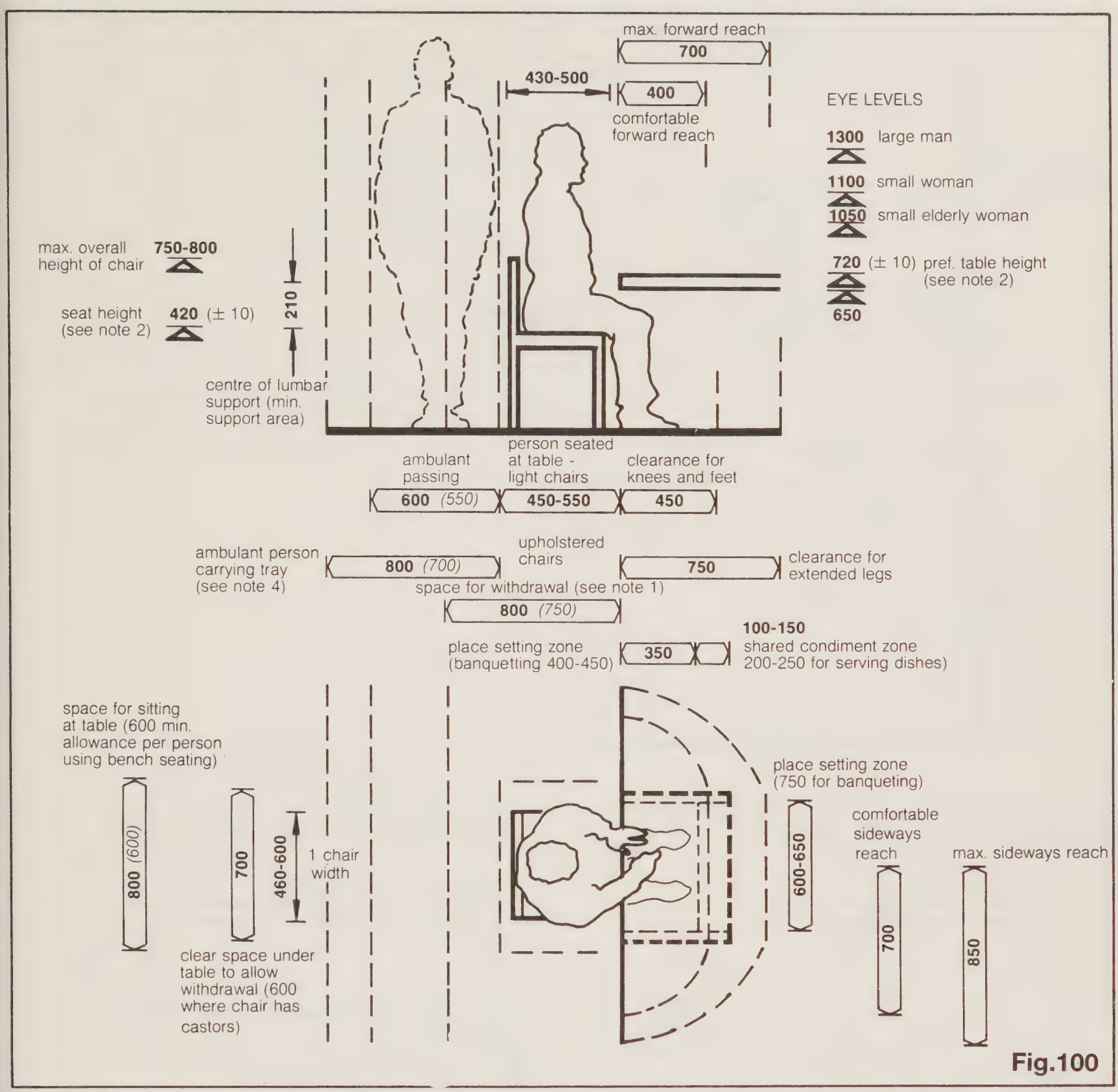


Fig.100

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Space for withdrawal - (750) is acceptable where the obstruction behind the chair is low level - ie 800 or below. Where the chair is upholstered the corresponding dimensions are 900 (800).

2. Alternative higher table and seat heights are possible that will also allow restricted use by wheelchair users, thus avoiding segregation ie 750-770 max. table height and 470 (± 10) chair height (these recommendations are however less satisfactory for smaller users especially female - see also note 5.

3.(a) Maximum angle of seat place 4°. The seating surface may be flat, sloped or include dishing. Any dishing should not exceed 10mm in depth and occur in the back 2/3 of the seat length, with the deepest part 3/4 length back from front edge.

(b) Angle between seat and backrest planes 95° to 100° max for dining chairs.

4. Circulation space behind chair 800 circulation is preferred as this also allows access (slightly restricted) by semi-ambulant users.

5. Ergonomic objectives for CHAIR/TABLE combintation

(a) Shod feet should be flat on floor, with no pressure at front or seat between seating surface and thighs.
(b) Front edge of seat must not impose pressure on back of legs - ie seat length must be adequate but not too long.
(c) The clearance between underside of table and seat surface must allow freedom for movement of thighs.
(d) Ideally the chair/table combination should be such that the users elbows are approximately level with the table top when upper arm is vertical.
(e) The chair should provide firm back support in the lumbar region but below the shoulder blades.
(f) Preferably there should also be adequate clearance between the backrest and seat to allow free movement of the buttocks.

Activities
Doctor interviewing patient with escort
Space requirements around desk for sitting circulation and parking of equipment

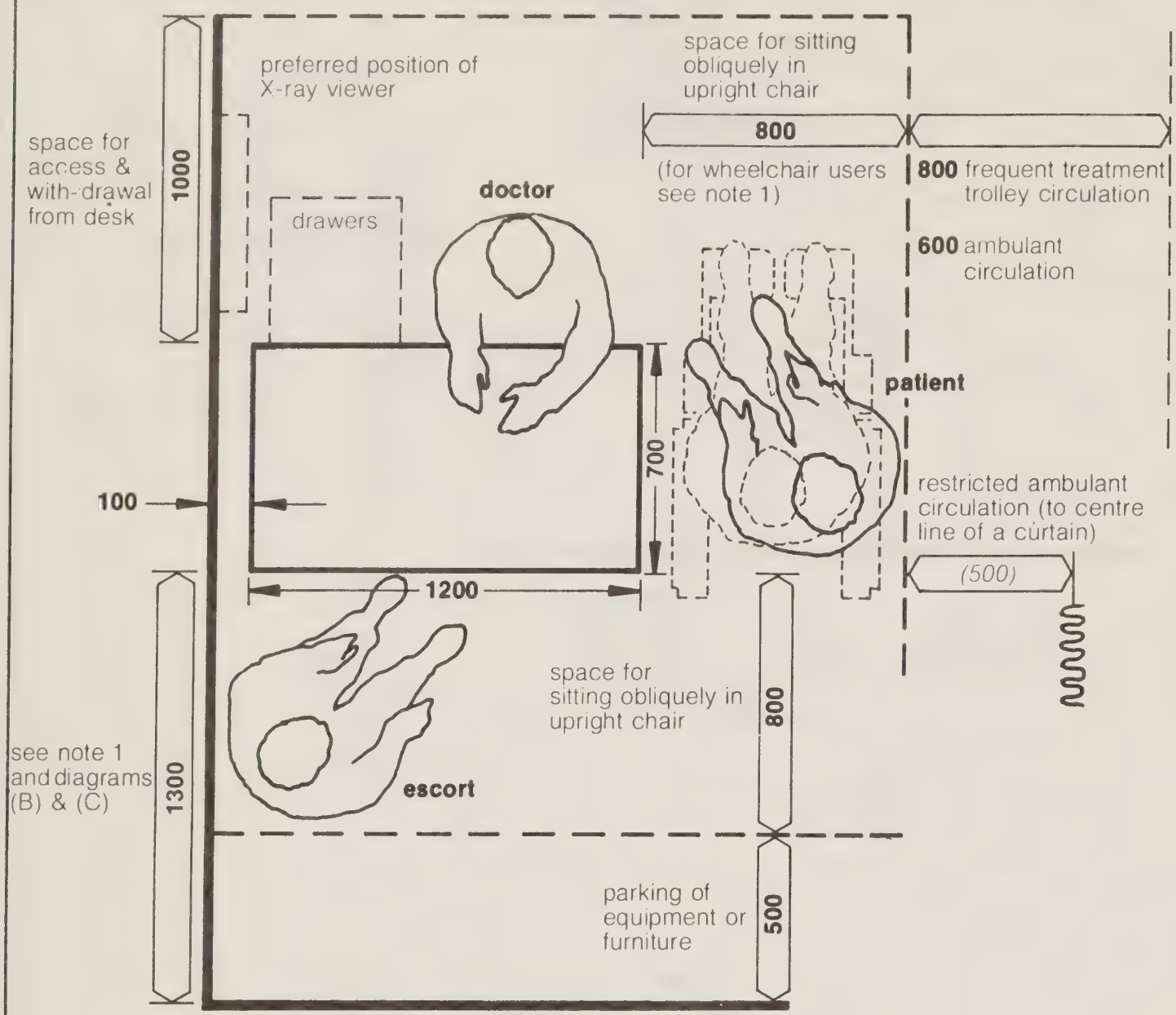
DHSS| **Ergonomic data bank**
Component-user data sheet, not to scale

Desk

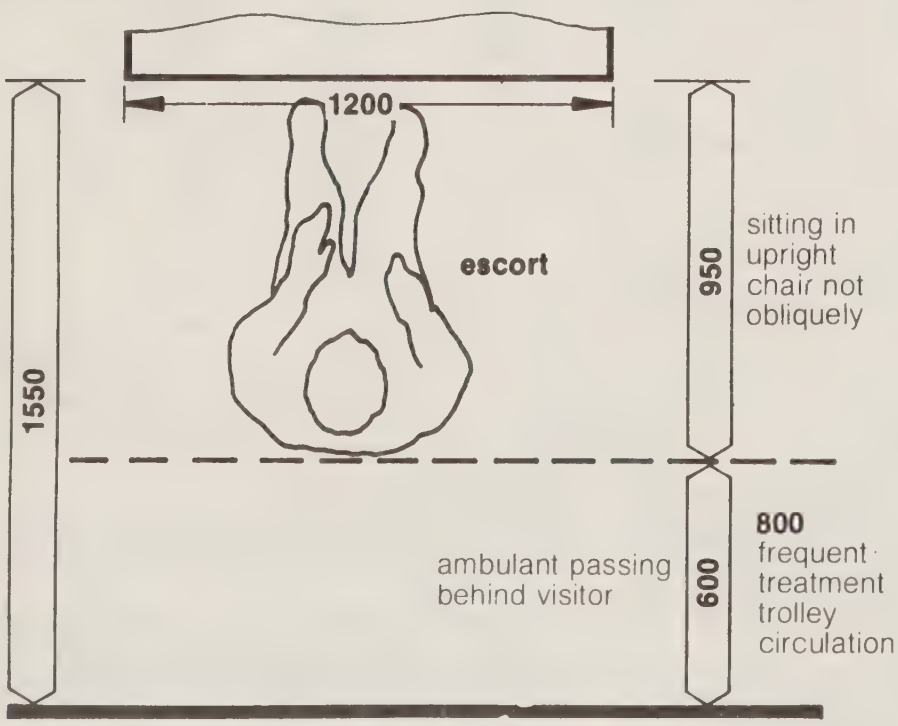
Doctor's with drawer on one side

users
Doctor, patient (ambulant or in wheelchair) with escort

(A) SPACE REQUIREMENTS AROUND DOCTOR'S DESK



(B) SPACE IN FRONT OF DESK TO ALLOW PASSING BEHIND A SEATED VISITOR (eg to gain access to an adjoining examination or other room)



(C) SPACE IN FRONT OF DESK TO ALLOW PASSING IN FRONT OF A SEATED VISITOR (eg to gain access to an adjoining examination or other room)

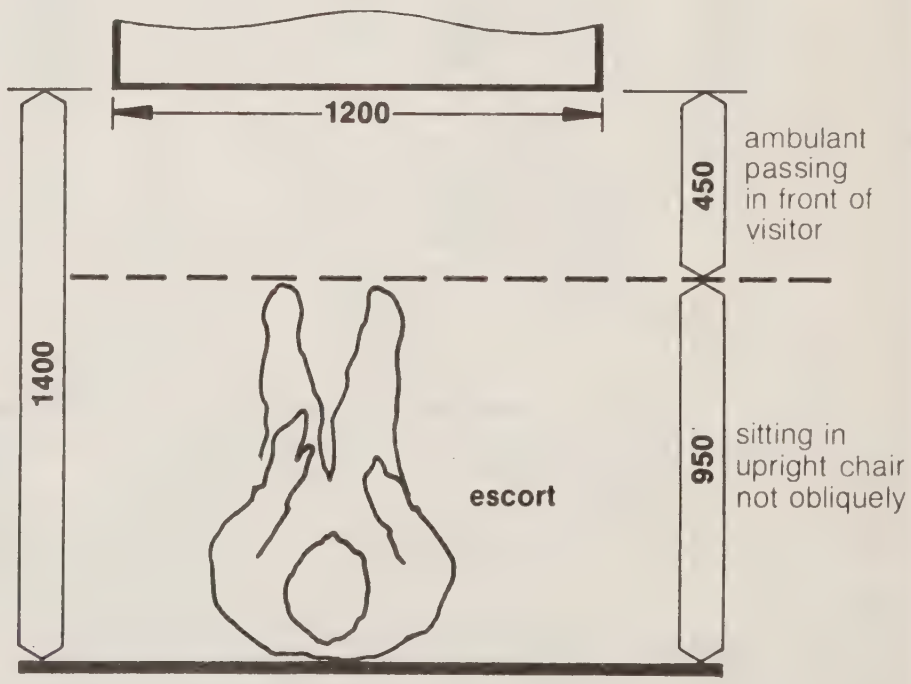


Fig.101

1350| *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Access by independent or assisted wheelchair users should also be considered. Space requirements for manoeuvring depend on door positions and room layout. A clear turning space of 1500 diameter is desirable.

Activities:
Movements through single doors, including location and minimum clearance for sole use by ambulant personnel, also some wheelchair traffic (see note, HTM 58).

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Doors

Single leaf, flush
800, 900, 1000 (1200), doorsets

DOOR SET WIDTH	800	900	1000	(1200)
Approx. effective clear opening (reduced opening)	640 (590)	740 (690)	840 (780)	1040 (980)
Type of movement poss.				
ambulant circulation only	✓	✓	✓	✓
carrying small tray/parcel	(✓)	✓	✓	✓ *5
semi-ambulant-using walking aid		(✓)	✓	✓ *5
independent wheelchair			✓ *4	✓ *5
assisted wheelchair			✓	
small trolley	(✓) *4	✓ *4	✓	✓
medium trolley		(✓) *3	✓ *4	✓
large trolley				(✓)
patient trolley				(✓)
patient hoist (wide base)				(✓)
patient hoist (narrow base)			(✓)	✓
hospital bed (K.F.)				(✓) *3
bed with attachments				*3

✓ = indicates that movement is satisfactory
(✓) = indicates that restricted movement only is possible
* = refer to that particular note.

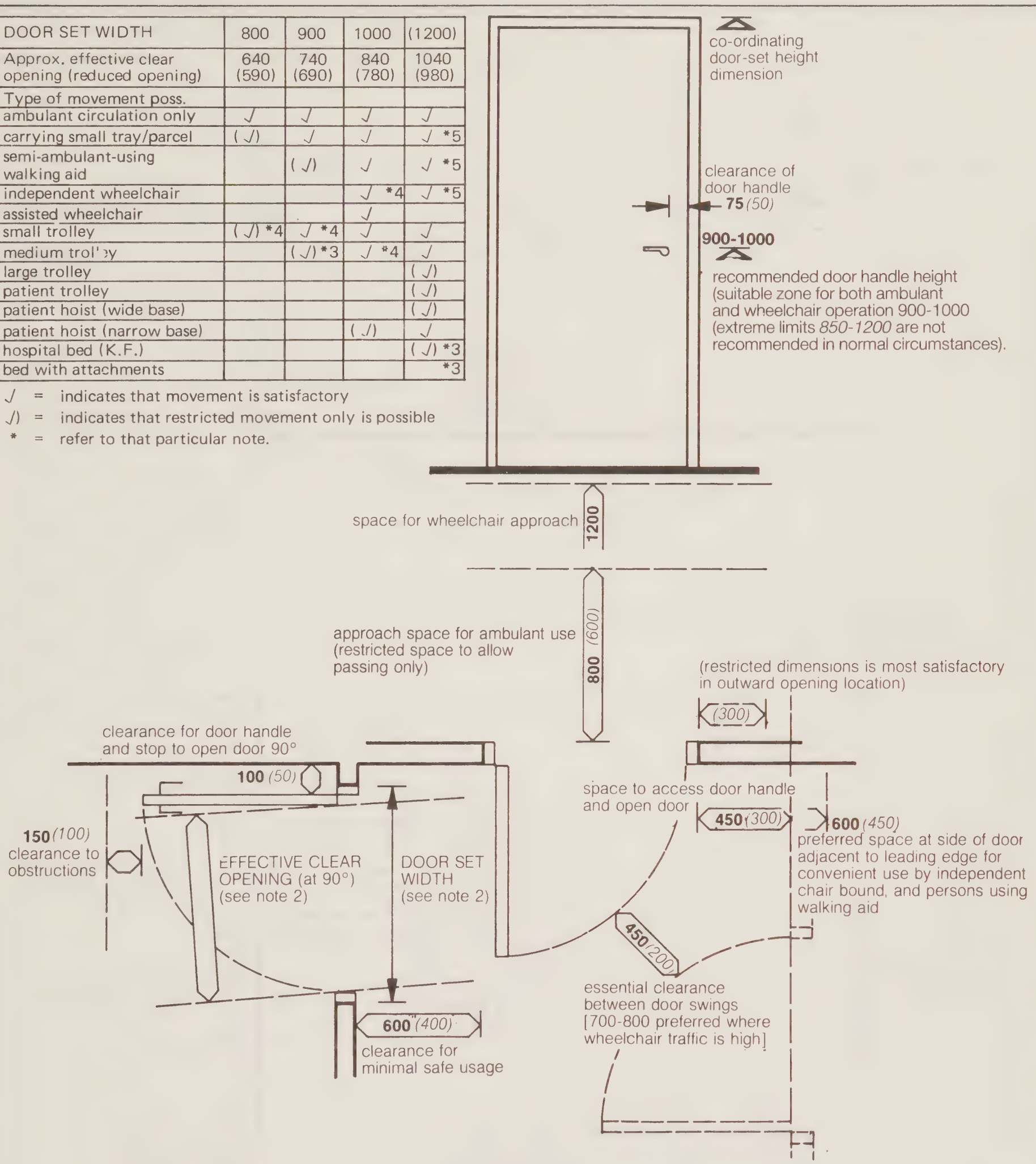


Fig.102

1350 *(1300)*

Preferred minimum — *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Door width limits use for certain categories of movement (see table); similarly movement may be impeded by inadequate space to turn into or out of door opening. Lobby requirements should therefore also be checked by reference to the appropriate component data sheets.
2. The above table showing clear opening widths and suitability for various categories of movement. Taller items of equipment (ie over 900 high where door handle is at 1000), or items carried at door handle height, will be afforded a reduced clear opening width where door swing is restricted to 90°, and especially where this is combined with difficult lobby conditions. Reduced widths are shown in brackets.
3. Movement is extremely restricted and use cannot be recommended for normal working situations. Any attachments must be removed before even restricted movement is possible. Damage to door frames and equipment is likely to occur, even when reasonable care is exercised.
4. Some limitations on speed of movement may be experienced.
5. Some difficulty in opening and closing heavier doors may be experienced.
6. Approach clearances are recommended whether or not doors contain vision panels, but are especially critical where approach to doors does not afford a view of concurrent or adjacent traffic.

Activities:
Retrieving and placing clothes in washing machine drum. Selecting programmes and operating washing machine controls. Placing powder in powder drawer.

DHSS **Ergonomic Data Bank:**
Component user data sheet, not to scale

Washing Machine front loading

(wheelchair users)

Users:
Independent wheelchair users

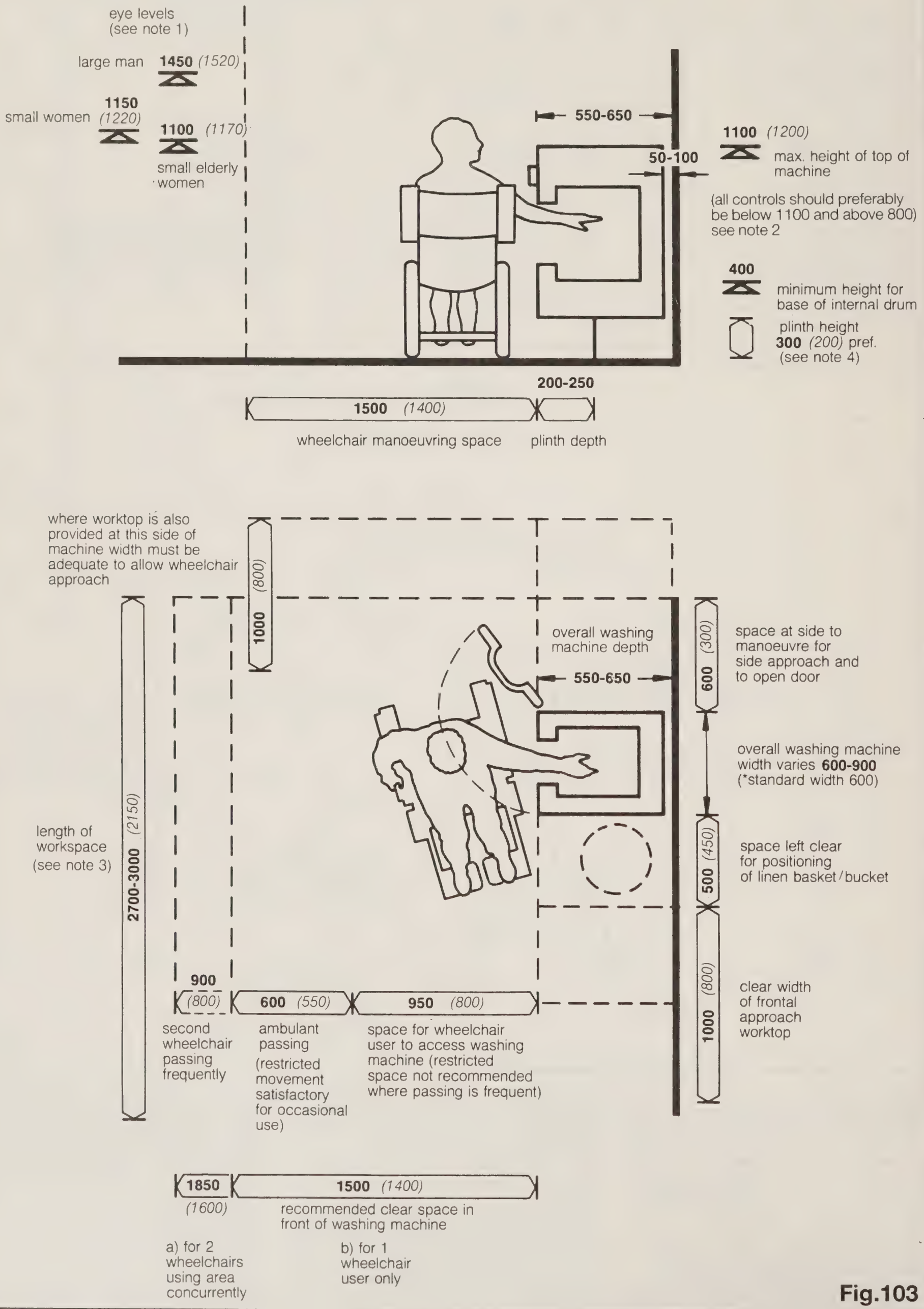


Fig.103

Washing Machine - front loading Notes

1350 *(1300)*

Preferred minimum: *Restricted minimum not recommended for general use: see explanatory notes)*

Notes:

1. Bracketed dimensions () indicate eye levels where wheelchair is fitted with a deep cushion.

2. All controls should be located at the front of the washing machine, clearly visible and easy to access from the wheelchair.

3. Length of workspace depends on exact layout, facilities provided, facility access requirements, door opening characteristics etc. A workspace length under 1900 is very restrictive and smaller dimensions, although possible, cannot therefore be recommended.

4. The washing machine should preferably be set on a plinth which will allow maximum unimpeded wheelchair footrest penetration under the front. This will allow easier manoeuvring and access into the drum.

5. To help users reach the back of the drum washing tongs should be provided and stored on a hook or peg at worktop level immediately adjacent to the machine.

6. The washing machine door should preferably open 180°

7. All top loading machines are very unsatisfactory for use from a wheelchair and are therefore not recommended.

8. A pull-out shelf adjacent to the machine (ht.750) is not helpful as a linen bowl/bucket (ht.280-300) placed in this position would be uncomfortably high.

Fig.104

Activities:
Sitting (in wheelchair)/ sitting up in bed.
Assessment of partition heights -

Low Partition

Office/bed space privacy screen

Users:
wheelchair users, patient in bed

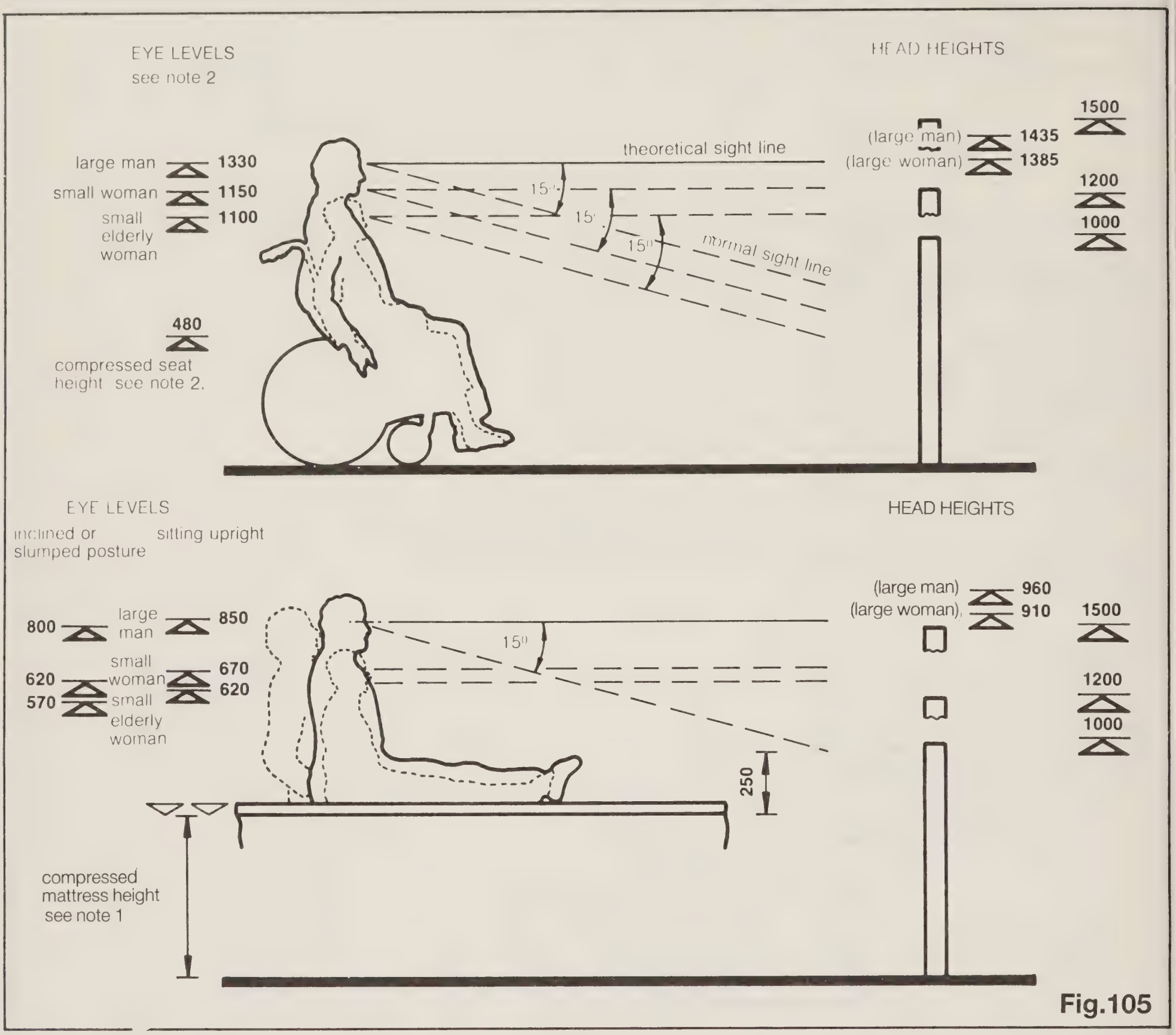


Fig.105

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Compressed mattress heights - typical dimensions

* It is recommended that 485-685 compressed mattress height be used as the working range for normal use in nursing areas.
The range 425-555 may be more applicable to residential accommodation, and the 425 dimension appropriate for staff and visitors accommodation only.
2. Where a thicker wheelchair cushion (ie 100mm deep) is used increase head and eye levels by 70. Wheelchair seat heights are unlikely to exceed 550, even for heavily upholstered geriatric chairs.

BED TYPE	Kings Fund (Fixed height)	King Fund Variable height	Fixed height (Hospital)	Divan type
PLATFORM HEIGHT	610	410-840	480	350
MATTRESS THICKNESS	125	125	125	125
MATTRESS COMPRESSED THICKNESS	75	75	75	75
COMPRESSED HEIGHT	685*	485* - 915	555·	425

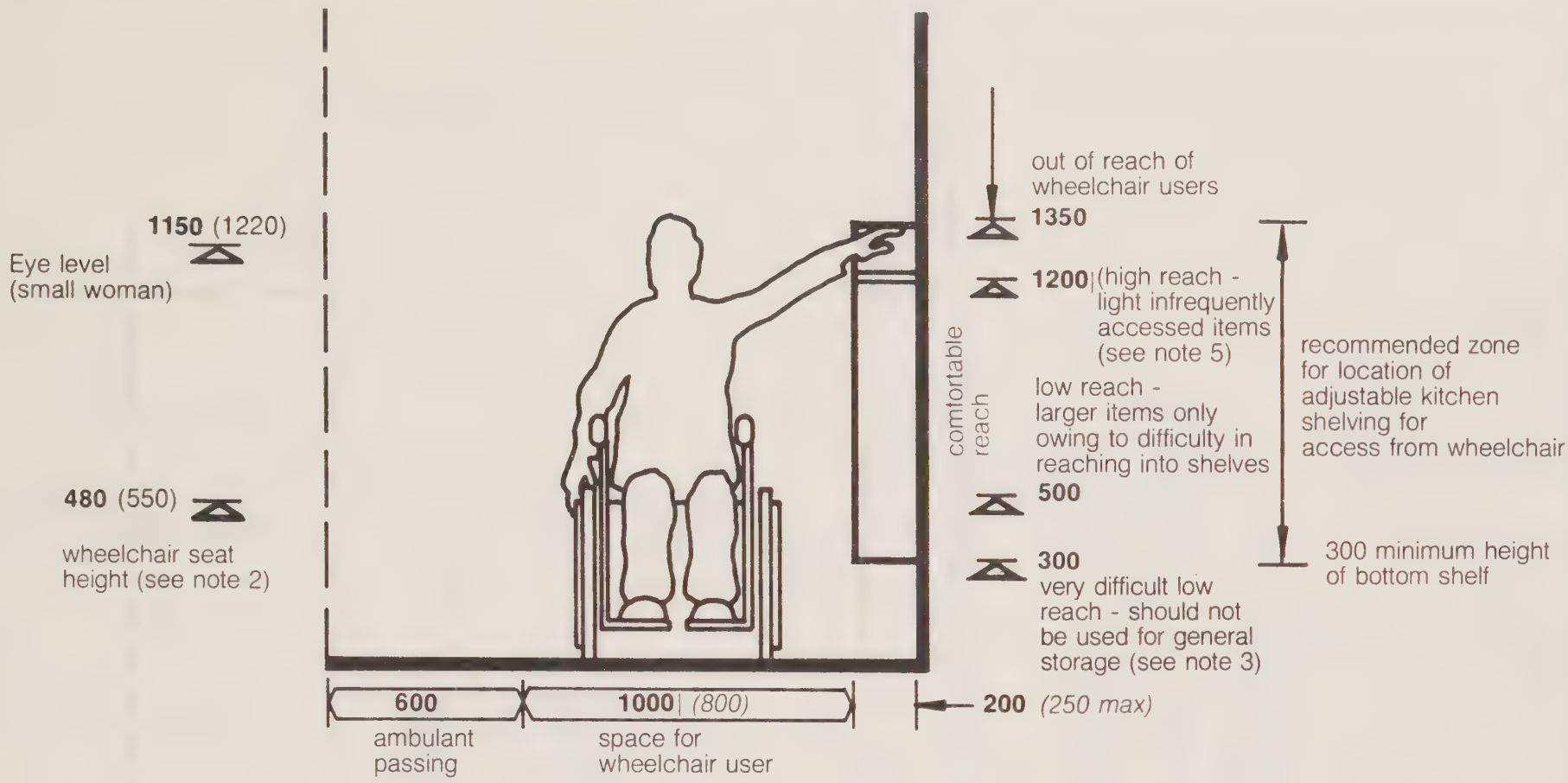
Activities
Placing or retrieving items on shelves.

DHSS **Ergonomic data bank:**
Component user data sheet, not to scale.

Shelving

open 200 deep.

Users:
wheelchair users



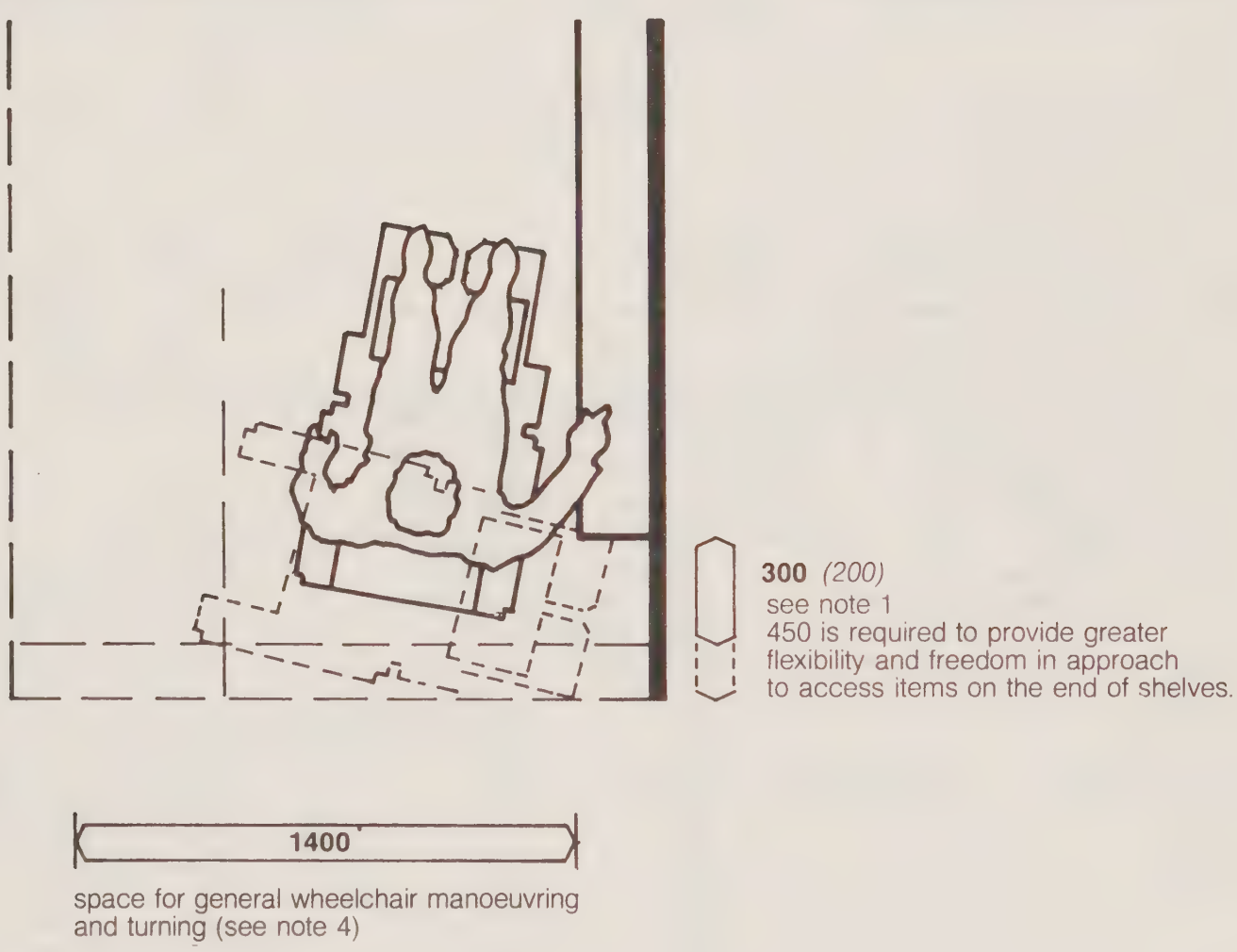


Fig.106

1350 (1300)
Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. Corner shelving is not easily accessible to wheelchair users, particularly if lateral approach only can be used.

2. A 100mm deep cushion is frequently used by the wheelchair disabled. This can be assumed to increase eye level by 70mm and provide an effective wheelchair seat height of 550.

3. Large items (ie over 300 high) can be stored at or near floor level, provided they can be reached at or above 300. Shelves positioned in this lower zone will however be extremely difficult to clean and may encourage their inadvertent use for the storage of smaller items with resultant inconvenience.

4. This dimension assumes that feet and footrests of wheelchair will pass under lowest shelf to allow turning. Where this is not possible clear dimension must be increased to at least 1500.

5. Maximum height refers to shelves where items stored are lightweight and of a size that can be easily handled.

Activities:
Access to cupboards - including opening/closing doors and placing/retrieving items

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Cupboards

wall mounted shallow/deep

Users:
wheelchair users

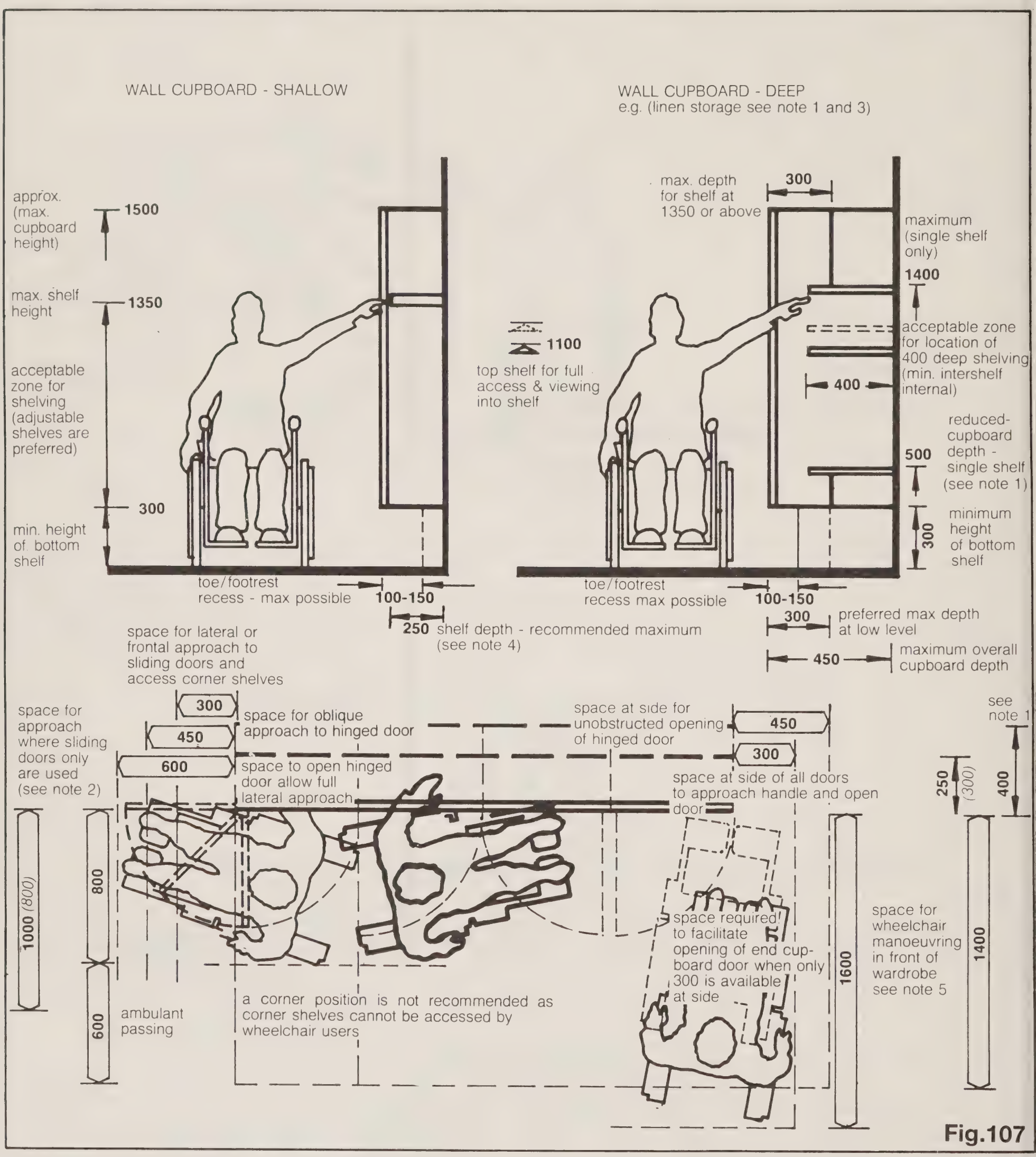


Fig.107

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Shallow cupboards and shelves are preferred. Reaching to the back of deep shelves at high and low levels is extremely difficult and potentially dangerous for the chairbound disabled. Deep cupboards should therefore only be provided for specific items where deeper shelves are essential eg for linen storage.

2. Where space in front of sliding doors is only 1000 *(800)* full manoeuvring space must be conveniently available nearby.

3. Slatted shelves should run at right angles to the cupboard door to ease movement of stored linen.

4. A 100mm deep cushion, which is frequently used by the wheelchair disabled, can be assumed to increase eye levels by 70mm. This provides an effective seat height of 550 max. Wheelchair seat heights, even for heavily upholstered geriatric chairs, are unlikely to exceed 550.

5. This dimension assumes that feet and footrest of wheelchair will pass under cupboard overhang. Where no overhang is available or is inadequate this dimension must be increased to 1500 minimum.

Activities:
Access to drawers at low level.

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale.

Drawers

Users:
Independent wheelchair users

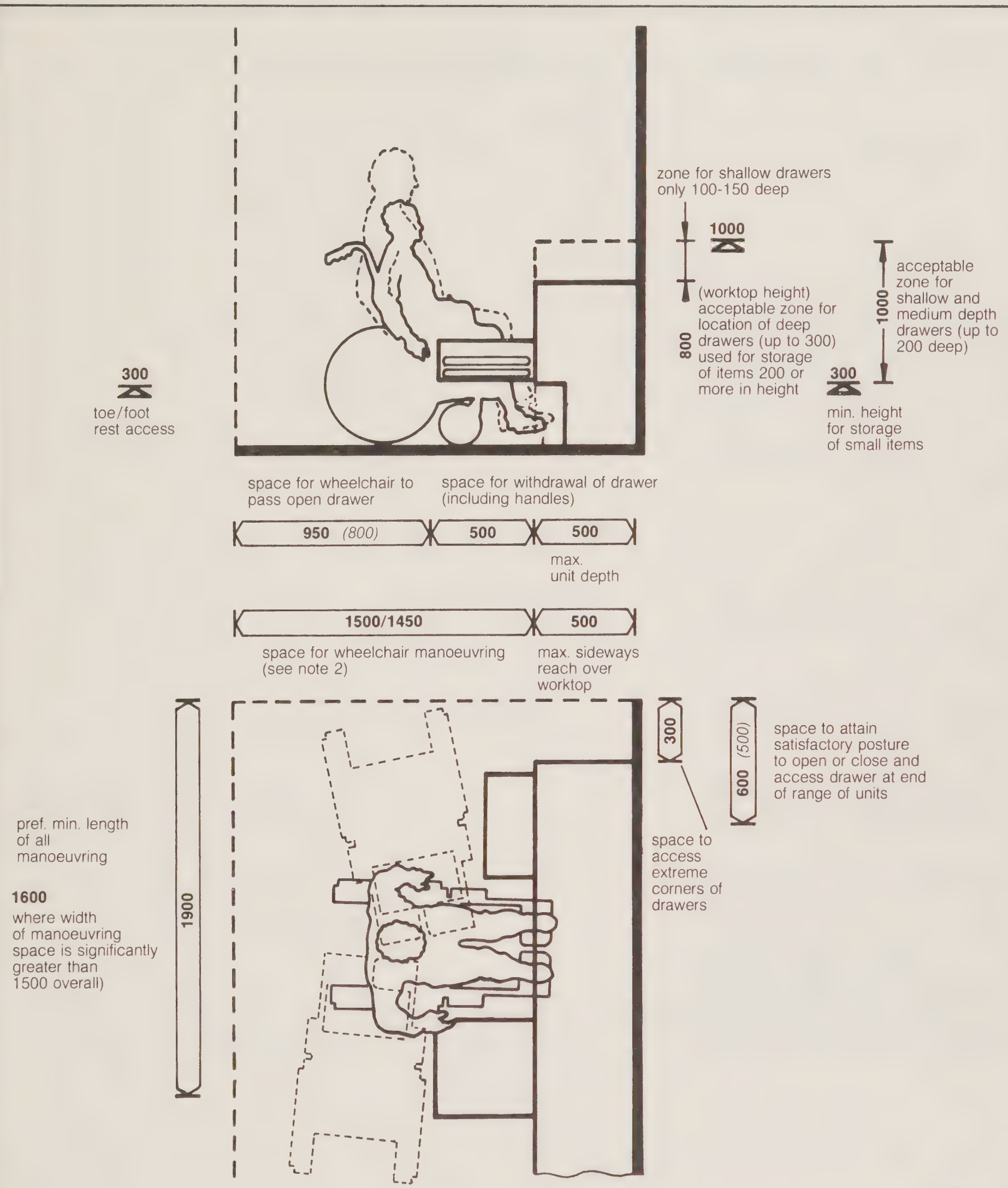


Fig.108

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Pull out drawers are recommended for deep low level storage for chairbound users. Deep low level cupboards are extremely difficult or impossible to use without special adaptors or aids.

2. 1450 will allow turning where feet and footrest can pass under overhang of toe/footrest recess. Where this is not possible however the clear dimension must be increased to 1500 to allow 360°/180° turns to be accommodated. This is essential in most dressing and frequently used areas.

Cupboards/ Storage Units Notes

for wheelchair users

STORAGE - general

Component	user	activity
CUPBOARDS	wheelchair users	access to
DRAWERS	"	"
SHELF	"	"

1. It is difficult, within normal domestic and other work areas such as kitchens to provide an adequate volume of storage space easily accessible to wheelchair users. A proportion of storage provision will almost inevitabiy be beyond reach. Frequently accessed items should therefore be given priority. Assistance may be essential to access other items.

2. Shallow cupboards and shelves are preferred as reaching into the back of deep shelves at low or high level is extremely difficult and is potentially hazardous.

3. At a low level, pull-out drawers are generally preferable to cupboards.

4. At low level, sliding doors are preferred to side-hung doors as they do not obstruct wheelchair approach and manoeuvring. However, sliding doors do tend to restrict simultaneous access to adjacent cupboards, which can be a disadvantage.

5. Handles and 'pulls' must be within comfortable reach, and easy to manipulate. Recessed handles are not recommended, especially where users are arthritic or have other deformities of the hands.

6. For general use by wheelchair users, cupbaords which only permit frontal access are not satisfactory. Space for lateral approach should also be provided whenever possible.

7. Where deep cupboards are essential, eg for linen storage, shelves should preferably be not more than 400 deep. Slatted shelves should run at right angles to the cupboard door, to ease the movement of stored linen.

8. Broom/cleaning equipment cupboards should have floors flush with adjacent floors, to eliminate the need to lift heavy equipment (eg vacuum cleaner). It will also allow the wheelchair to partially enter the cupbaord allowing better postures when handling equipment of this kind.

Fig.109

Activities:
Transfer onto and off of a bed
Bed-making by independent wheelchair user

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Bed 1

Various See note 1

Users:
Independent and assisted wheelchair users

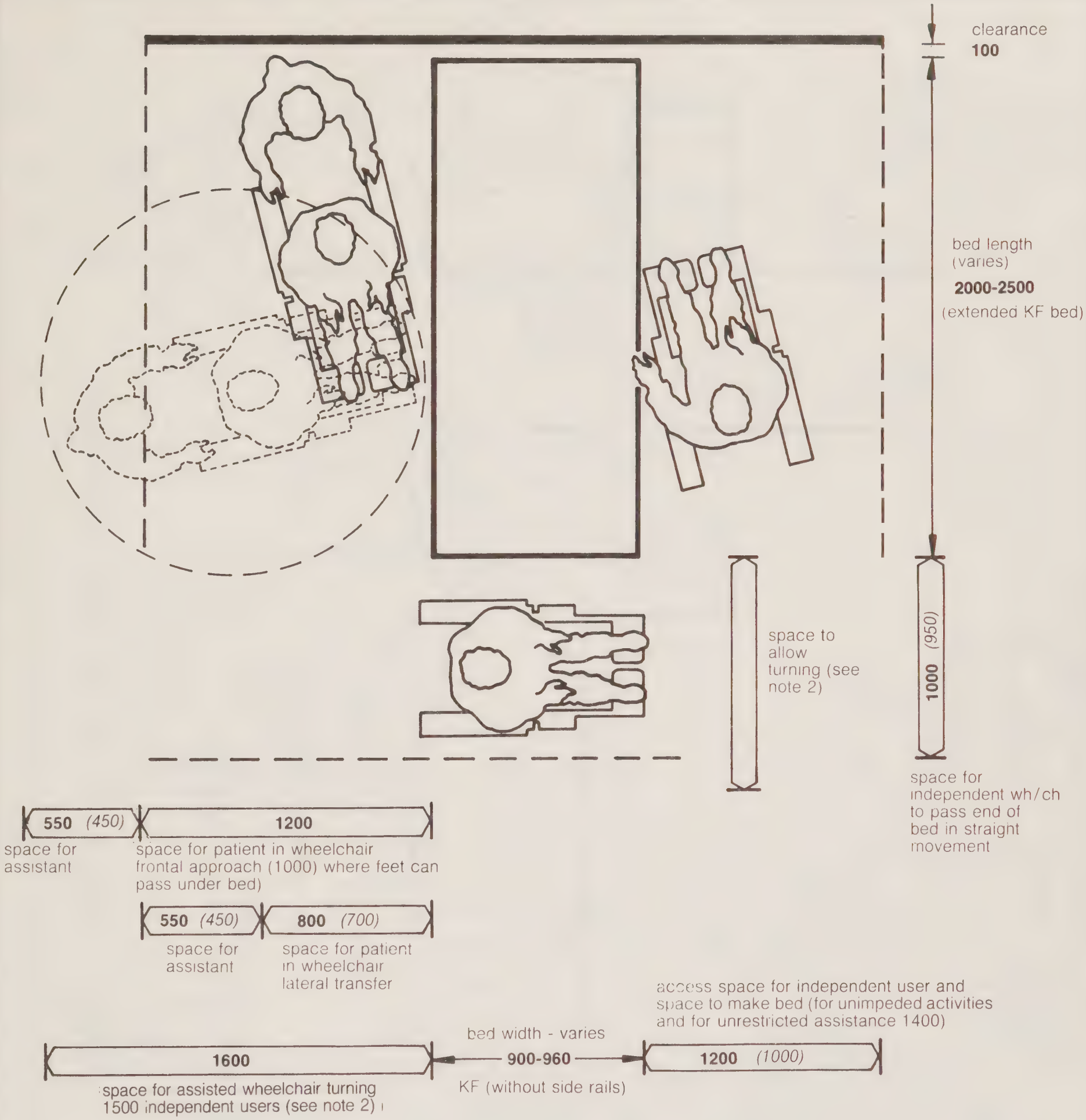


Fig.110

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Compressed height of mattress for transfer by wheelchair users is critical and should be equal to the effective seat height of the wheelchair ie 480 (or up to 550 with 100 deep cushion). Where the handicapped person stands during transfer a compressed mattress height of 500 is preferred.

2. If space for wheelchair turning is not available to one side of the bed then turning space should be available nearby.

3. Space at foot of bed must be increased to 1400 to accommodate 90° turn when only (1000) is available at side of bed. Similarly where space at bottom of bed is only (1000), space at side should be 1400. Where space at side of bed is 1200, space at foot of bed should be 1200.

Activities:
Activities around bed in residential accommodation

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Bed 2

divan

Users:
elderly (in residential accommodation)

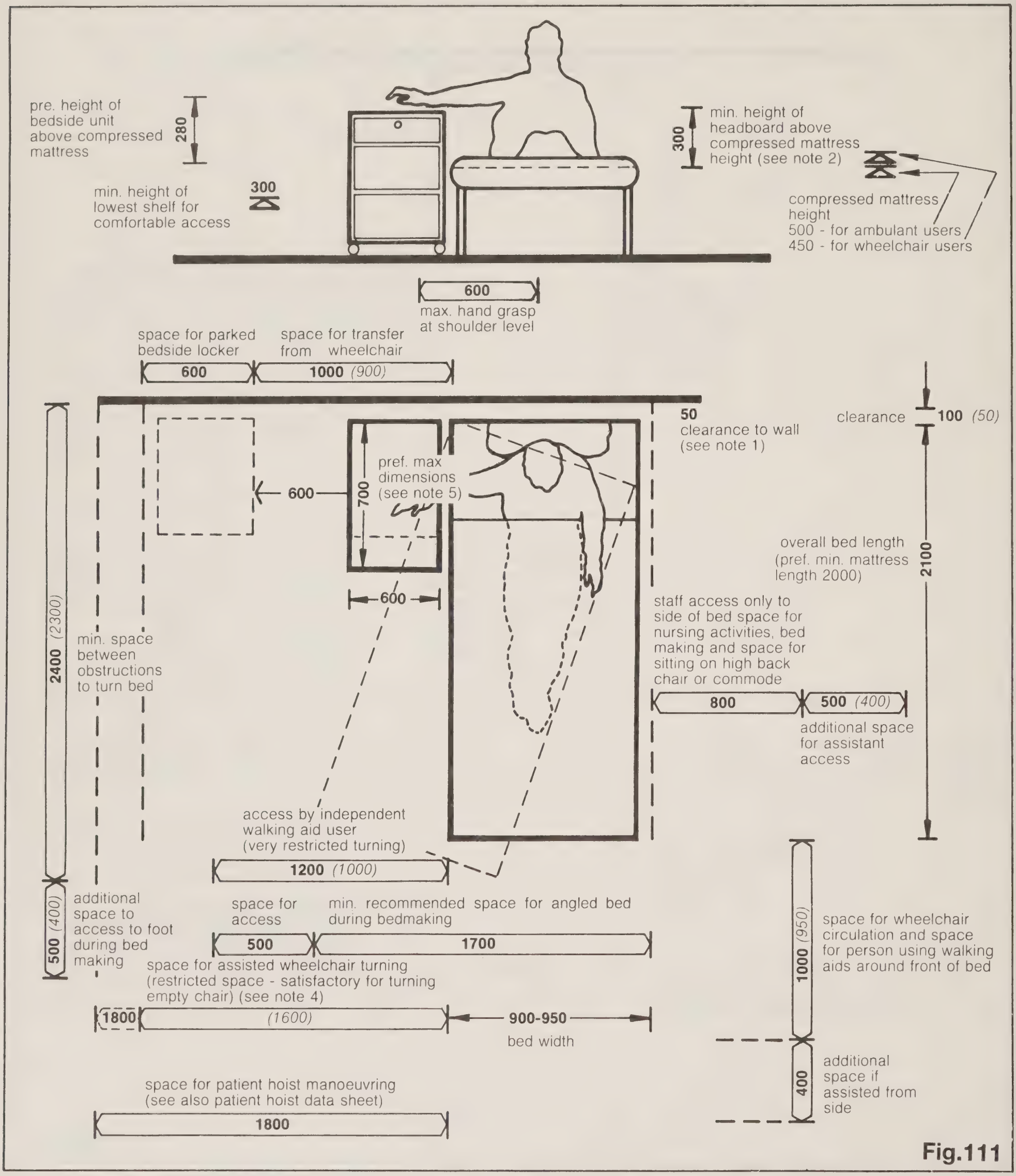


Fig.111

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes:

1. Although occasionally beds will be positioned against side wall, overall space must be adequate to afford nursing access to both sides of bed when this becomes necessary.

2. Headboard must also be satisfactory as a backrest for person sitting up in bed. It should not have sharp corners that could cause injury and should preferably be padded.

3. 750 is a compromise fixed height which would cause least inconvenience to beds at 450 and 500 compressed mattress height.

4. The need for 360° or 180° turns of occupied wheelchair do not occur frequently, 1600 is therefore seen as adequate in most circumstances.

5. The maximum depth of shelves within locker should not exceed 250.

Activities
clothes storage

DHSS **Ergonomic data bank:**
Component user data sheet, not to scale.

Wardrobe
clothes storage

Users:
wheelchair users

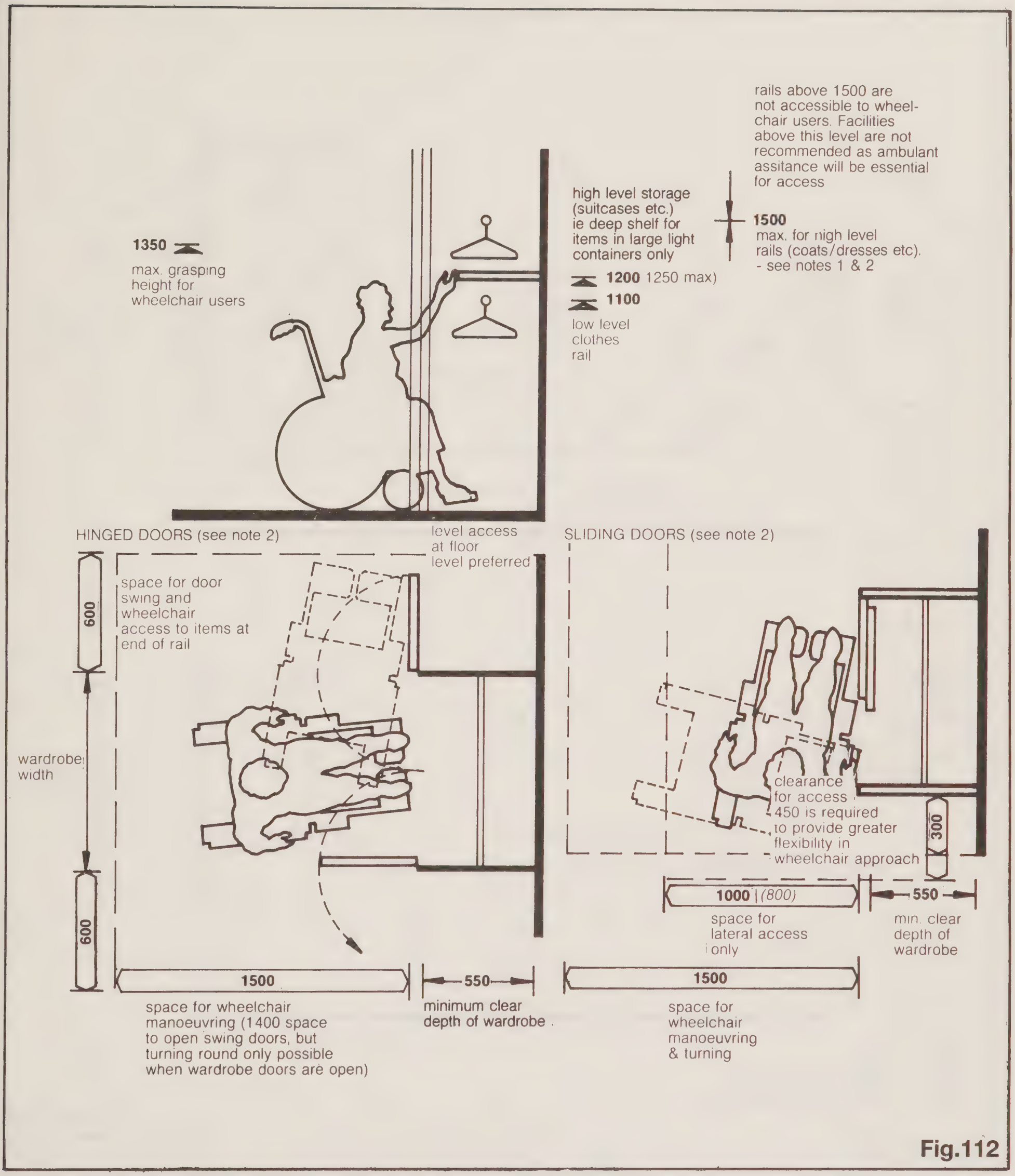
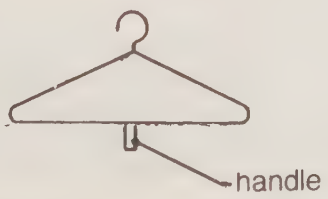


Fig.112

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. At 1500 the rail itself cannot be reached, but is just reachable with coat hangers and can be made more accessible by the use of long handled coat hangers —



2. Hinged doors allow good access to high level storage. Sliding doors give poor access to high level shelf storage and are recommended for high rail type units without shelf storage above only.

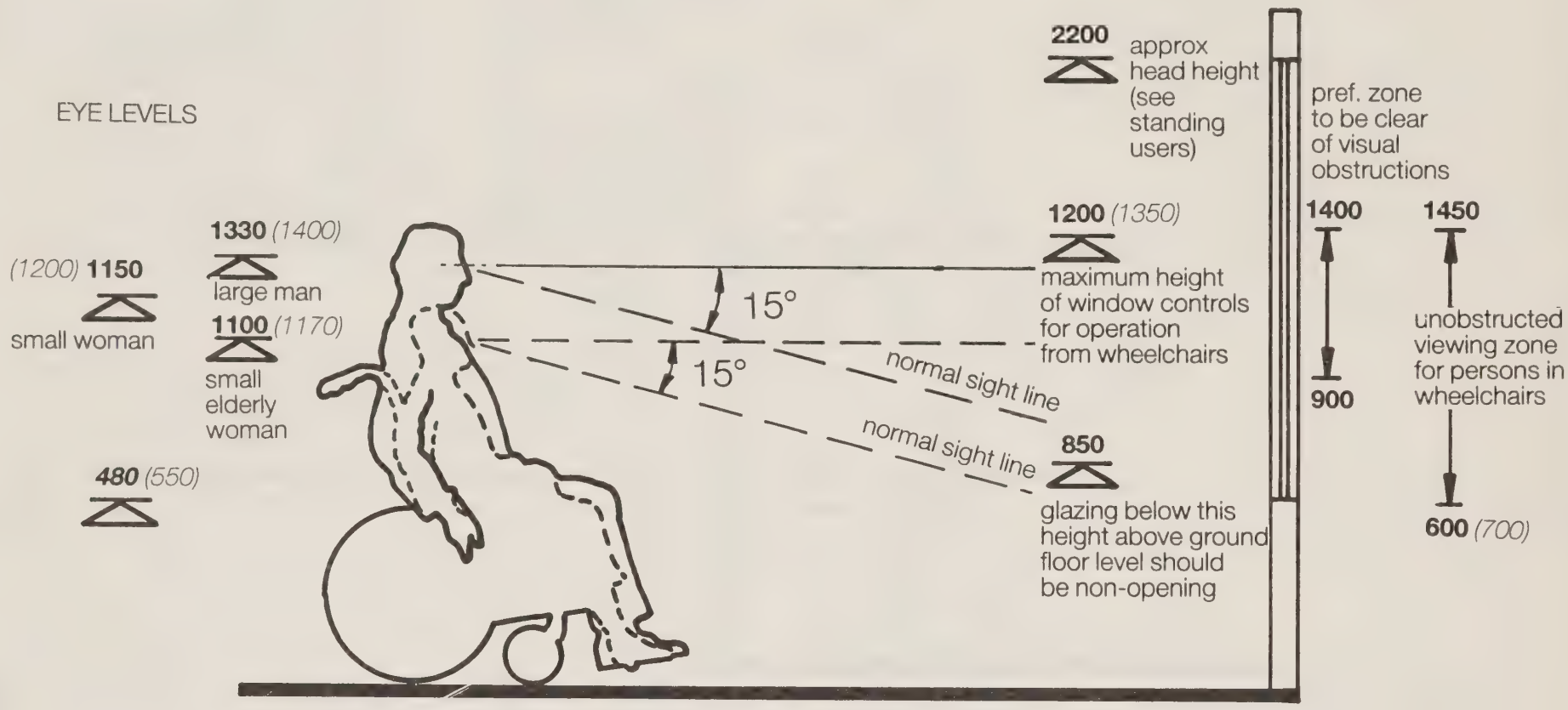
3. Ankle length long dresses require 1700-1800 from wardrobe floor to rail and therefore cannot be recommended satisfactorily in these wardrobes.

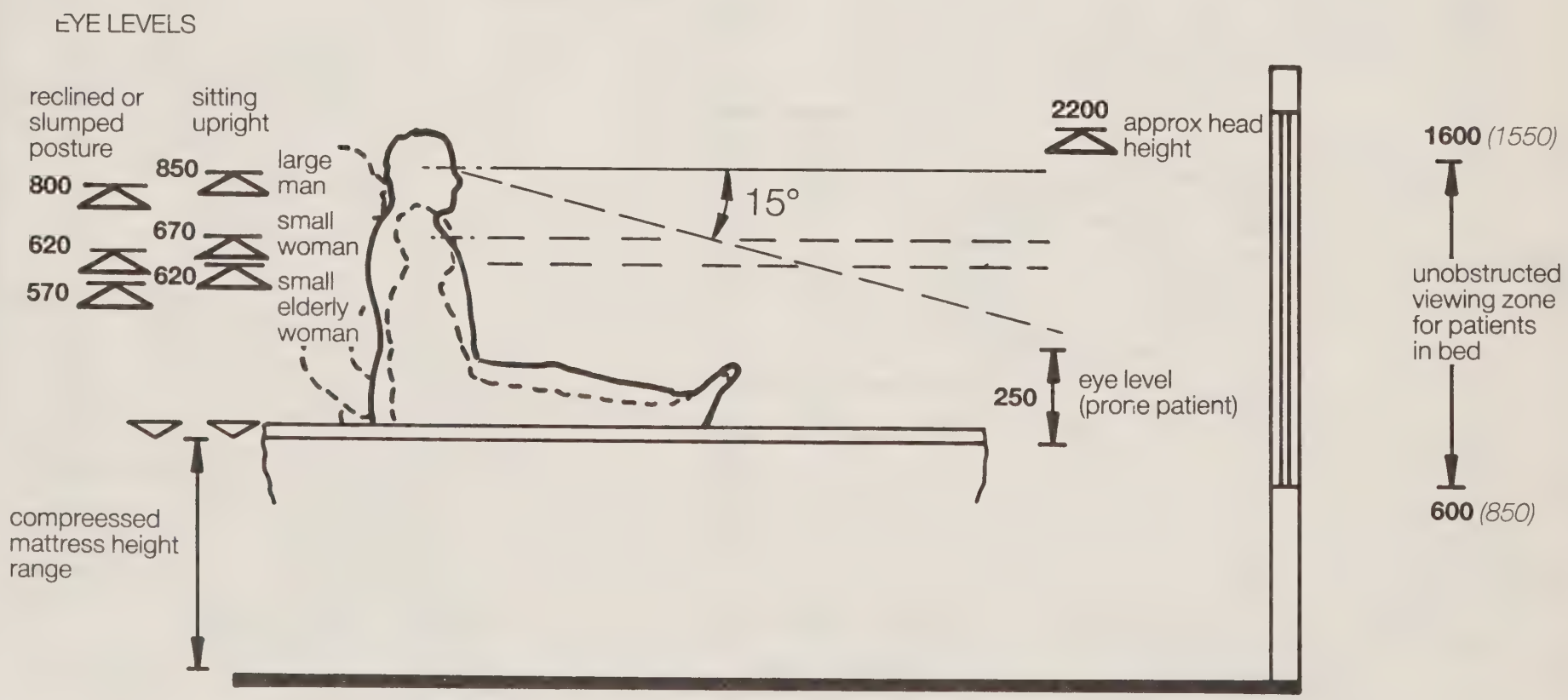
Activities:
Looking out of windows, use of window controls

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Windows

Users:
wheelchair users
patients in bed





425 (divan)
555 (hospital type)
685 (King's Fund - fixed height)
485-915 (King's Fund - variable height)

Fig.113

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. It is difficult to give specific recommendations for window sizes, as this depends upon specific needs, such as view, privacy, overlooking and varying factors such as viewing distance and user postures. Generally, where view is a requirement transomes should not obstruct the sight lines of frequent users in the principal postures adopted.

2. The theoretical standard line of sight is horizontal but in practice the natural line of sight is approx 10° below the horizontal for standing users and 15° below the horizontal for seated users in more relaxed postures these angles may increase to 30° and 38° respectively. This applies to short viewing distances (say up to 15M).

3. No other preference for window head height can be stated, especially related to standing users. However, if the window head height is too high it can cause glare for seated persons.

4. Guard rails are required for first floor and above in public areas.

Activities
Sitting in chair
Assisted and independant changing

DHSS **Ergonomic data bank**
Component-user data sheet not to scale

Chair 1
Upright

Users
Partially capable (including the elderly) with assistance

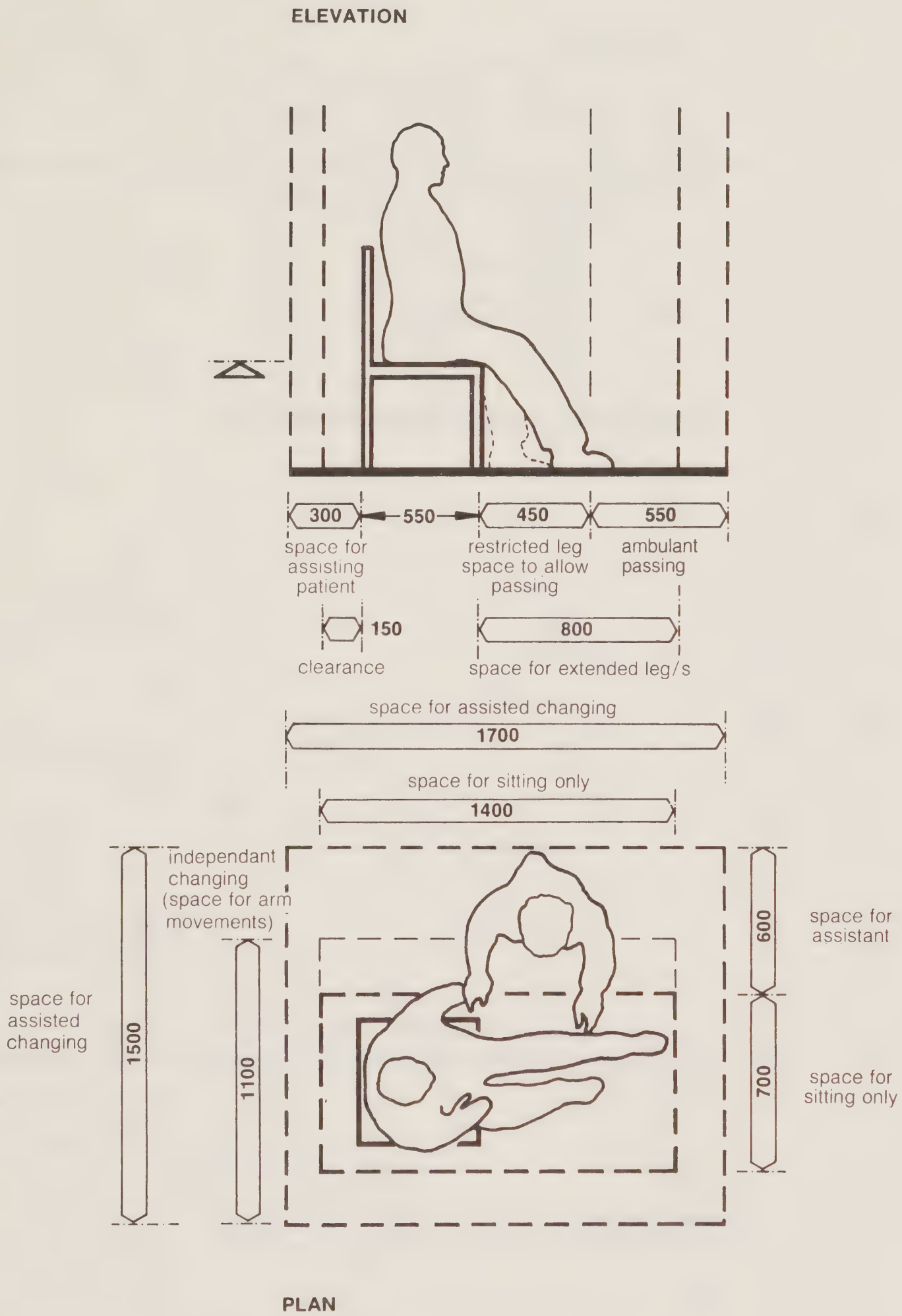


Fig.114

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes).*

Activities
Sitting on chair
Assisting patient to sit down on or rise from chair

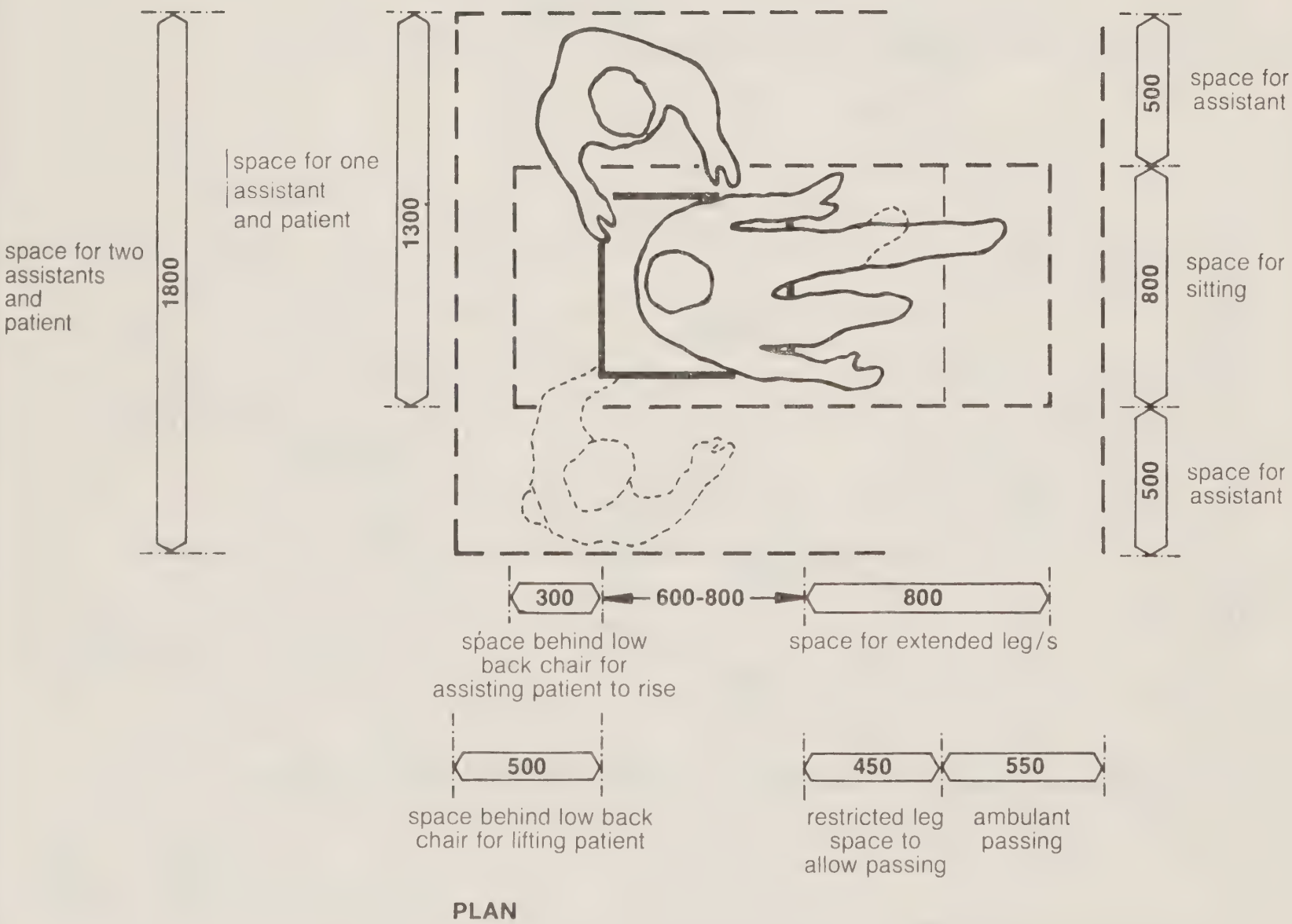
DHSS **Ergonomic data bank**
Component-user data sheet not to scale

Chair 2

Geriatric (with high or low back)

Users
Elderly with assistance

ELEVATION



PLAN

Fig.115

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

See also alternative layouts
Single bedrooms data sheet

DHSS **Ergonomic data sheet**
Activity space example layout, not to scale

Single bed room 1

Patient accommodation

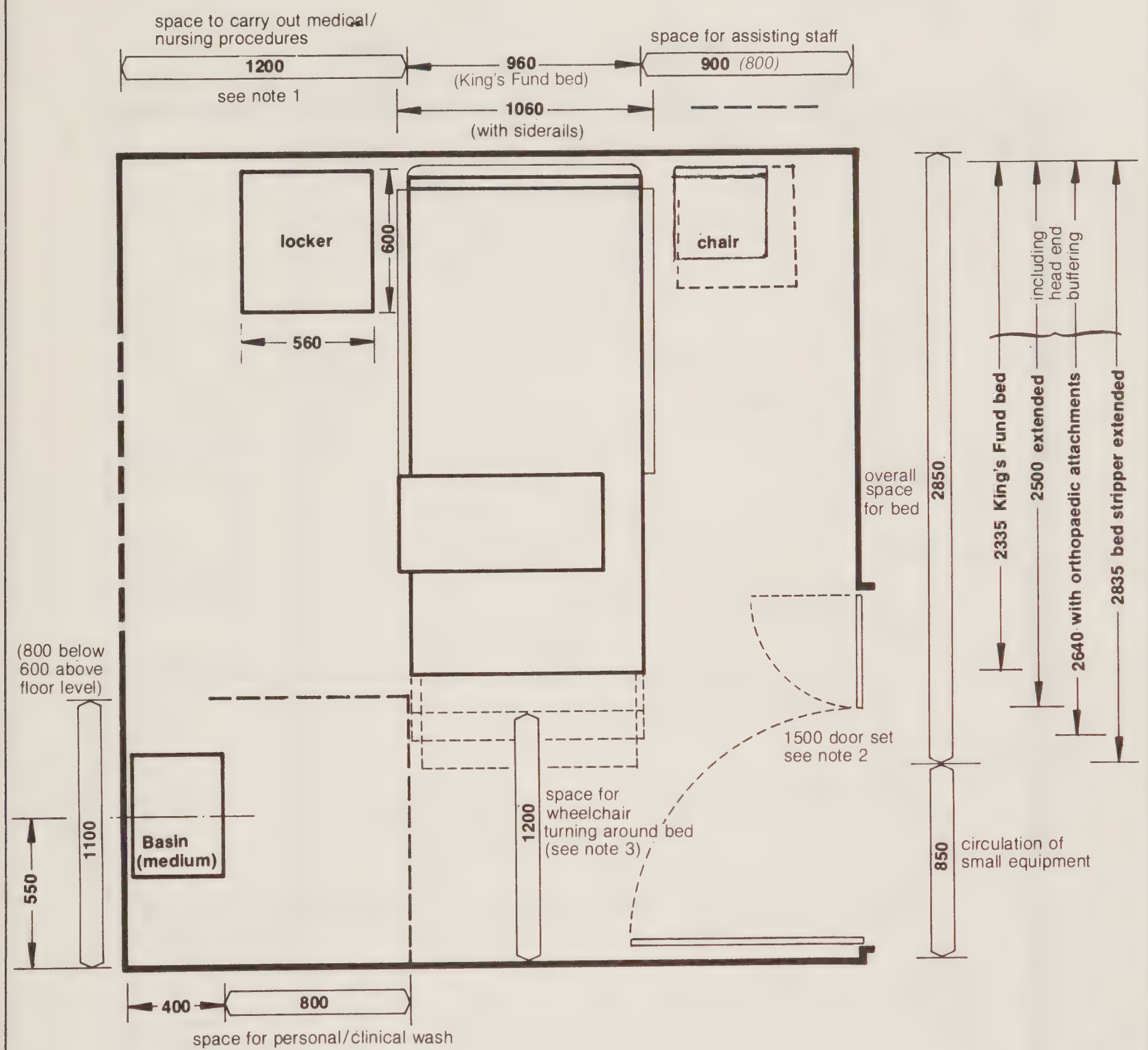


Fig.116

Notes

1. Restricted dimension of (900) may be applicable on the principal working side of the bed, but with this layout to allow movement past foot of bed 1200 is required due to the basin position (see also alternative layouts)

2. Smaller door sets (e.g. 1200) require more space to facilitate the turning of beds and can be of an inadequate clear width for beds with attachments.

3. The space at the foot of the bed must allow for 90° wheelchair turns to gain access to the side of the bed, rather than space for straight movement only.

Activities:
Basic living space for elderly ambulant or assisted wheelchair user, including storage of clothing and personal items, and personal washing.

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale

Single Bedroom 2

ELDERLY ACCOMMODATION

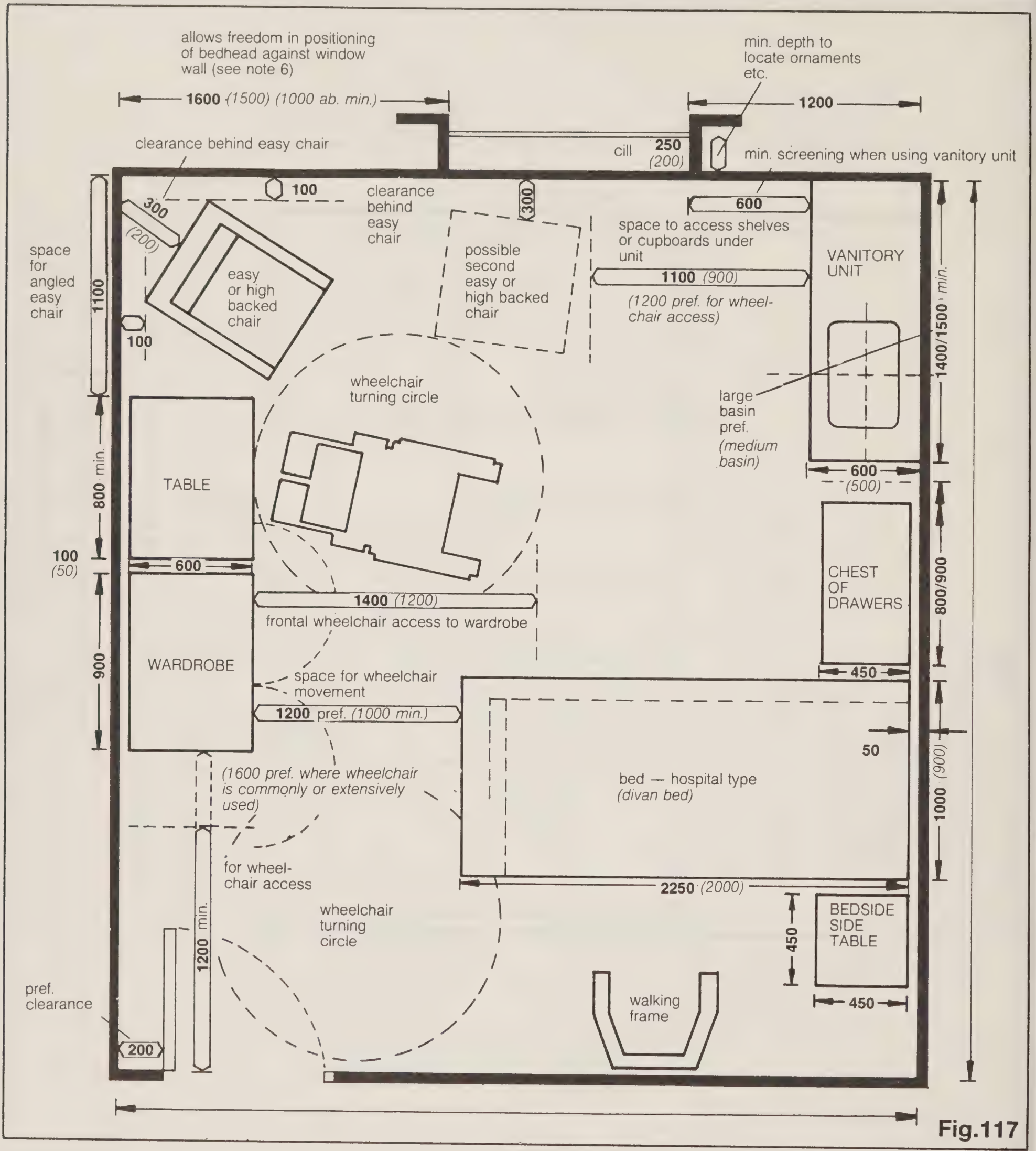


Fig.117

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. Since wheelchair users are more likely to have meals in their own rooms it is important that there should be a table for them to eat meals at.

2. For access spaces to specific items of furniture, see respective wheelchair C.U.D.S.

3. High backed chairs should be very stable to reduce risk of accidents during transfer.

4. If residents have their own furniture they will be familiar with its use and will not have to get used to using new articles, or learn new techniques.

5. There is some flexibility and room for additional furniture in a room of these dimensions, although the layout shown does (or could) impose some restrictions on wheel-chair movement where the larger bed is included.

6. The layout of furniture, as shown, is preferable, but alternative positions for items of movable furniture exist. If an alternative arrangement is to be considered, attention must be paid to the space dimensions shown to ensure easy and safe use of all items.

Activities:
Basic living space for elderly ambulant or assisted wheelchair user (restricted) including storage of clothing and personal items, and personal washing.

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale

Single bedroom 3

ELDERLY ACCOMMODATION

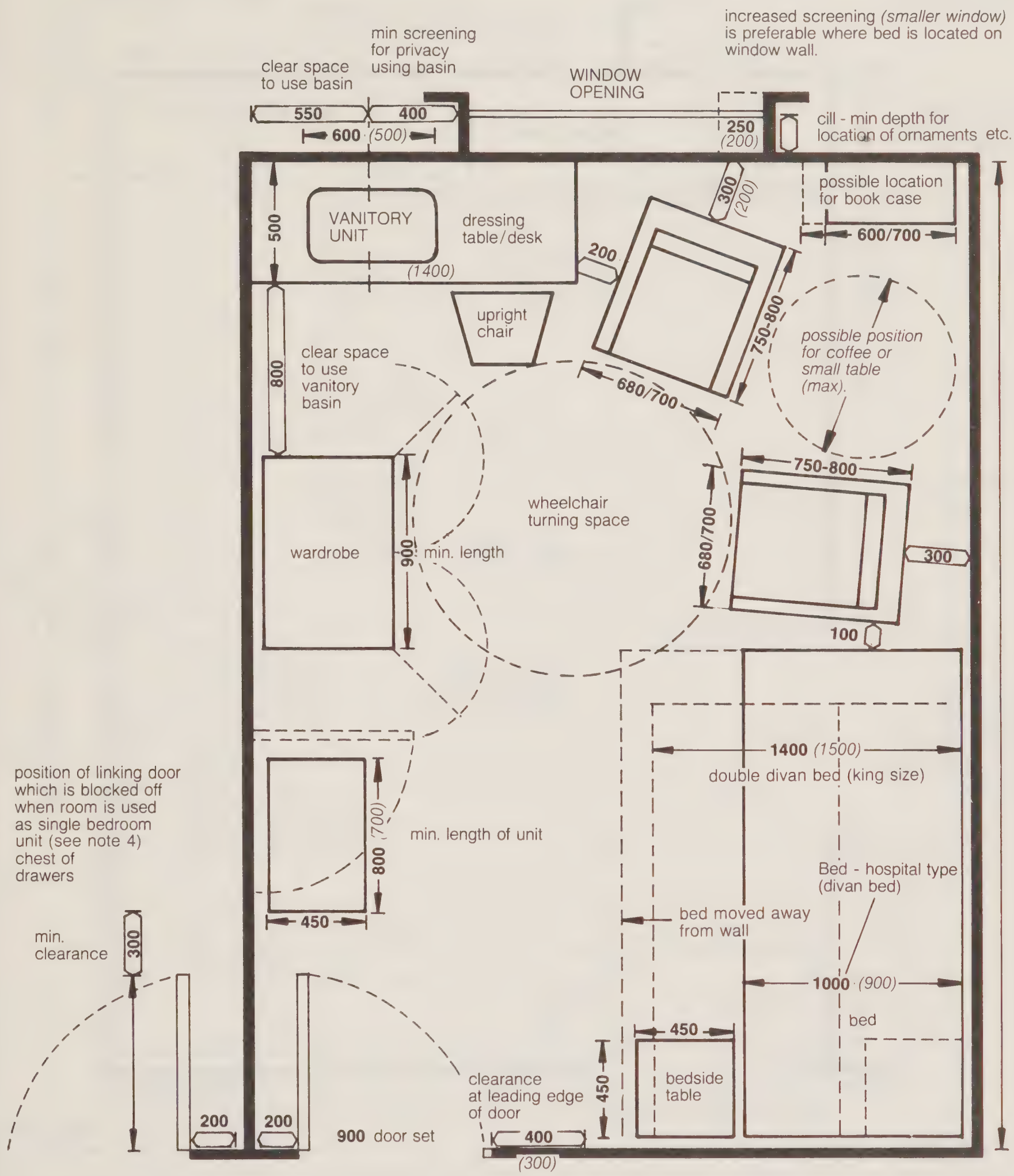


Fig.118

1350 (1300)

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:
1. Bed can be moved away from the wall to provide limited access to both sides of the bed. The space will make bed making and moving the bed out easier.

2. Only vanitory unit should be fitted. All other furniture is loose to allow alternative and individual room arrangements to be achieved.

3. Wardrobe doors should open through 180° to aid wheelchair access.

4. It would be possible to have a connecting door between this room and an adjacent sitting room, although necessary extra furniture could be accommodated very satisfactorily where this room to be used as a double bedroom for a married couple.

5. The layout of furniture, as shown, is preferable, but alternative positions for items of movable furniture exist. If an alternative arrangement is to be considered, attention must be paid to the space dimensions shown to ensure easy and safe use of all items.

Activities:
Basic sleeping space for married residents with amenity for personal washing and storage facilities for clothing and personal items.

DHSS **Ergonomic data bank:**
Activity space example layout, not to scale

Double bedroom

ELDERLY ACCOMMODATION

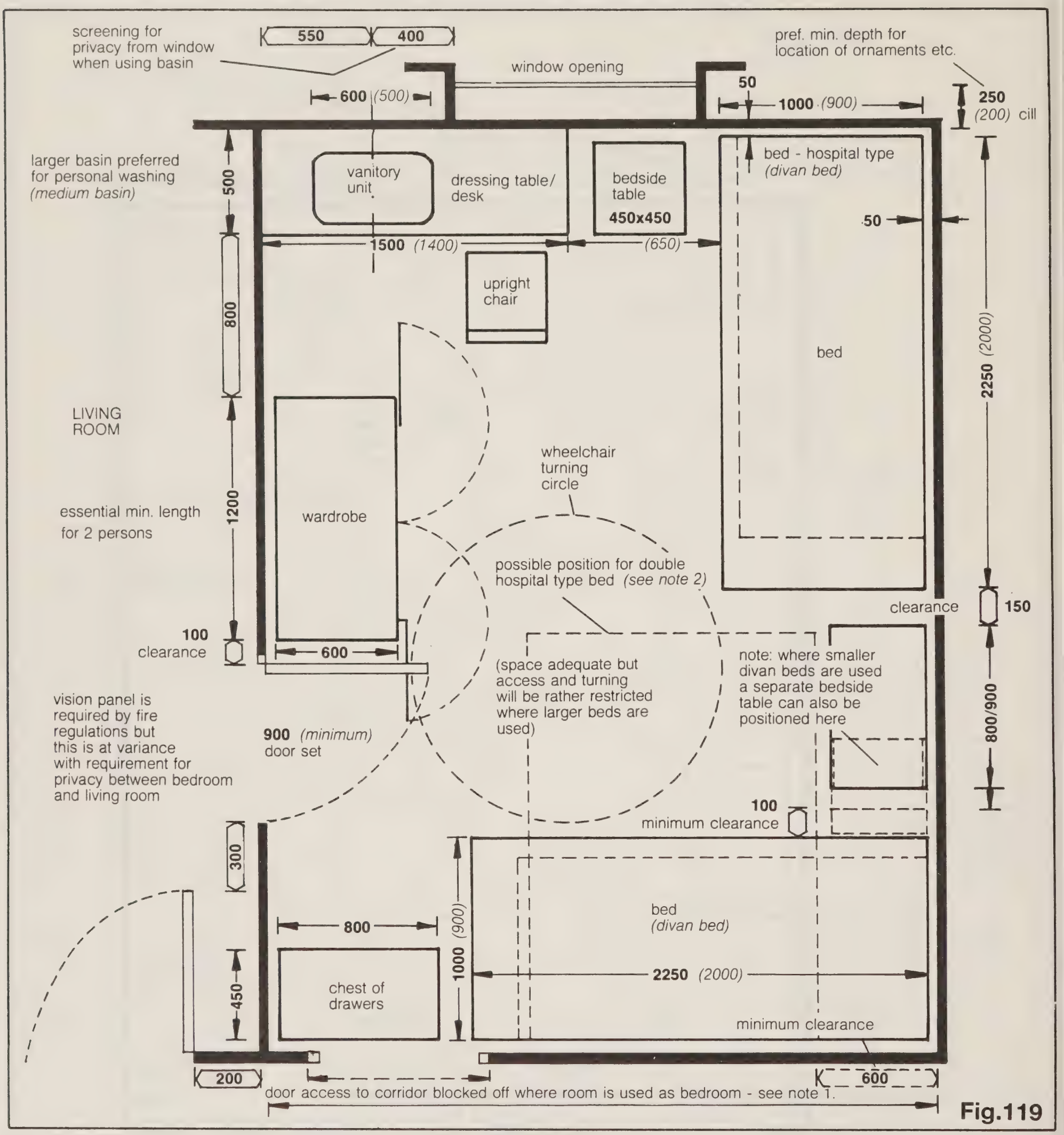


Fig.119

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes:

1. In order to provide sufficient storage space for two persons, a large wardrobe (1200 x 600) and an additional chest of drawers must be provided. So that these can be accommodated satisfactorily the door between bedroom and corridor must be blocked off. (This could be achieved simply by removing the door handles and screwing partition panels into position. This would help to abate noise and improve the room aesthetically.

2. The two single beds take up a considerable amount of space. Restriction could be slightly reduced if a double bed was used. Married residents should be given the choice to bring their double bed with them if they so desire. This would require re-location of other items of furniture in the room to maintain circulation and proper access to chest drawers and optimise access to wardrobe.

3. Economically and practically it is not desirable to have the connecting door facility inbuilt into every dividing wall. It is recommended that this should be done in only 4 locations in a 40 person home. Double rooms should not be shared by unmarried residents. All independent residents should have single rooms.

4. The layout of furniture, as shown, is preferable, but alternative positions for items of movable furniture exist. If an alternative arrangement is to be considered, attention must be paid to the space dimensions shown to ensure easy and safe use of all items.

An activity space where a patient, who may be ambulant or in a wheelchair, may be interviewed in confidence: see also alternative layouts.

DHSS **Ergonomic data bank:**
Activity space example layout not to scale

Consulting Room (separate)

Layout A

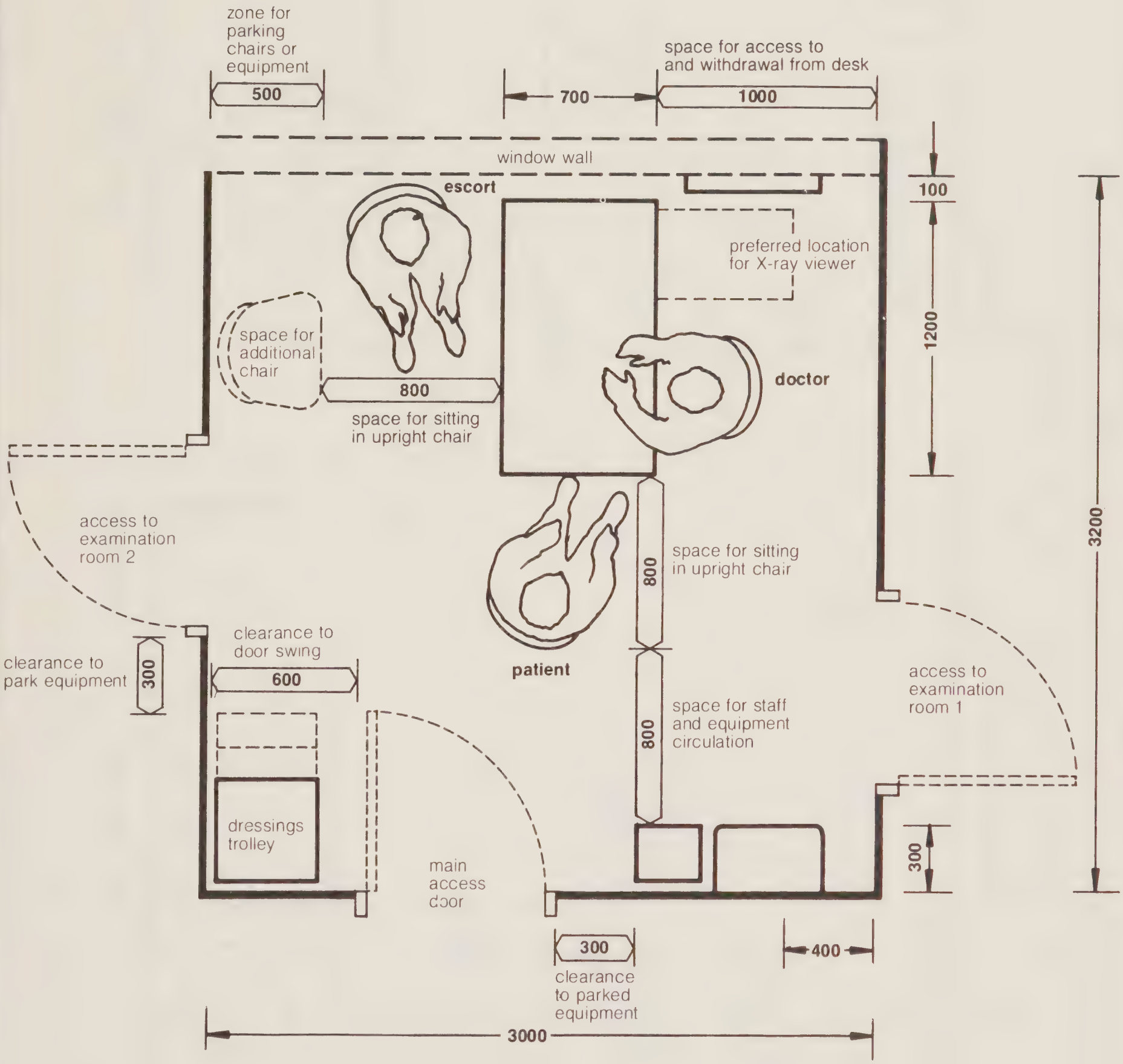


Fig.120

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use; see explanatory notes)*

Notes

1. The consulting room is usually in direct communication with one or two examination rooms.

2. Access doors and communication routes should not inconvenience doctor, patient or escorts and door swings should not be a potential danger at any time.

3. The doctor/consultant when seated at the desk must not have his/her back to the main access door, but must be so positioned as to comfortably acknowledge a visitor on entry, and should preferably not be silhouetted against a window causing discomfort glare either as seen by a visitor entering the room or by a patient being interviewed.

4. It is psychologically more satisfactory if the space in front of the desk is seen to be significantly larger than the space behind the desk.

An activity space where a patient may be interviewed in confidence and examined by a doctor assisted by a nurse or patient's escort, and where certain diagnostic and therapeutic procedures may be carried out.

DHSS **Ergonomic data bank**
Activity space example layout data sheet, not to scale

Consulting/ Examination Room

(Combined, general purpose)

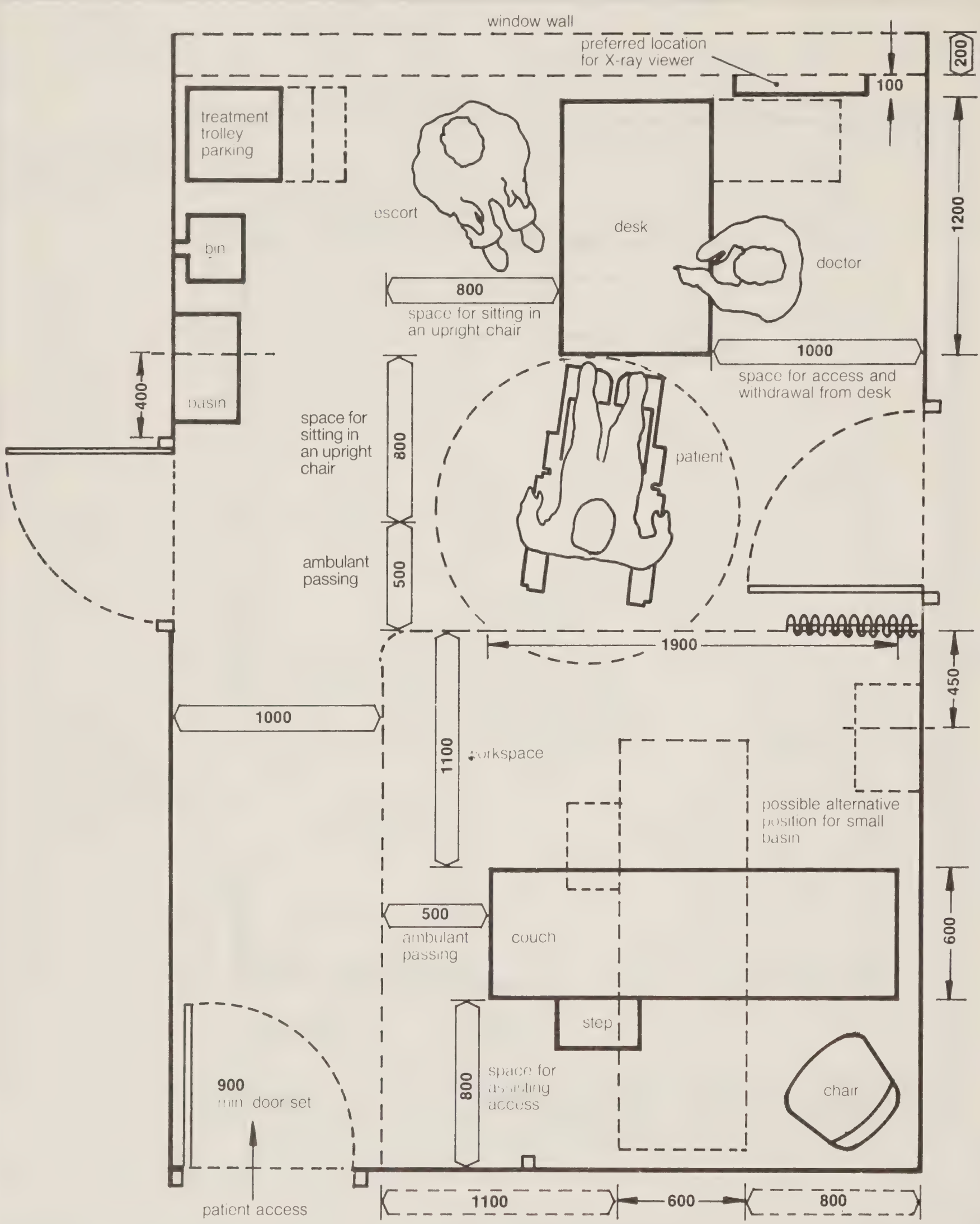


Fig.121

Activities
Rehabilitation — tending panels
see also Planting beds, wheelchair disabled users.
side and frontal approach

DHSS **Ergonomic data bank**
Component-user data sheet not to scale

Planting beds 1

(raised) and potting
benches

Users
Partially capable including
the elderly)

TENDING PLANTS — STANDING

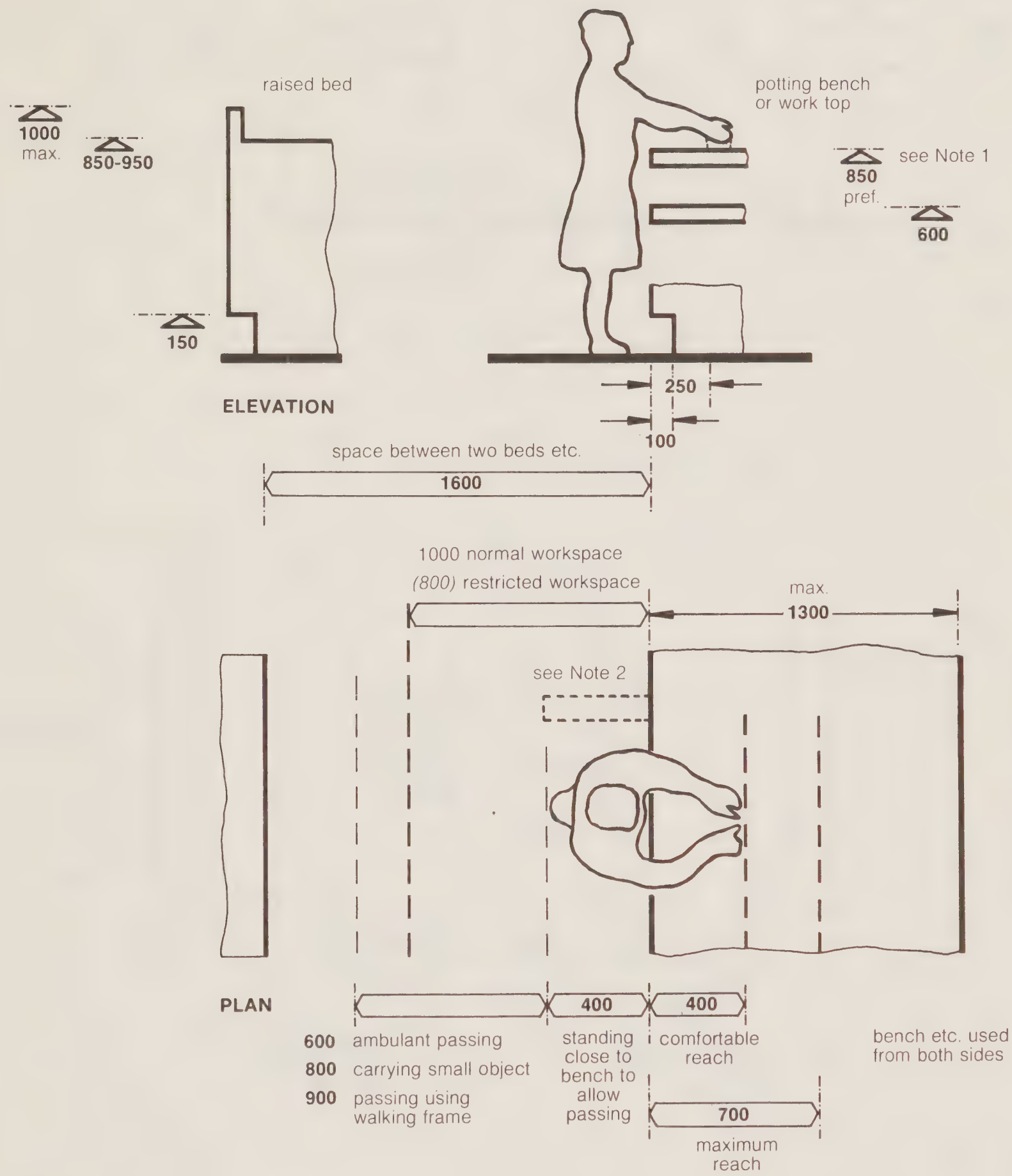


Fig.122

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes).*

Notes

1. This applies to a fixed height bench or worktop. A variable height facility is preferred. For standing use range 950, 900, 850, 800. For wheelchair users range 800, 750,700.

2. A corner position gives lateral support to standing users. Projecting walls of a similar height to the work surface will create a similar amenity.

Activities:
Rehabilitation tending plants see also Planting beds, wheelchair disabled users, side approach, and Planting beds, partially capable users

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Planting beds (2)

(raised) and potting benches

Users
Wheelchair disabled including the elderly.

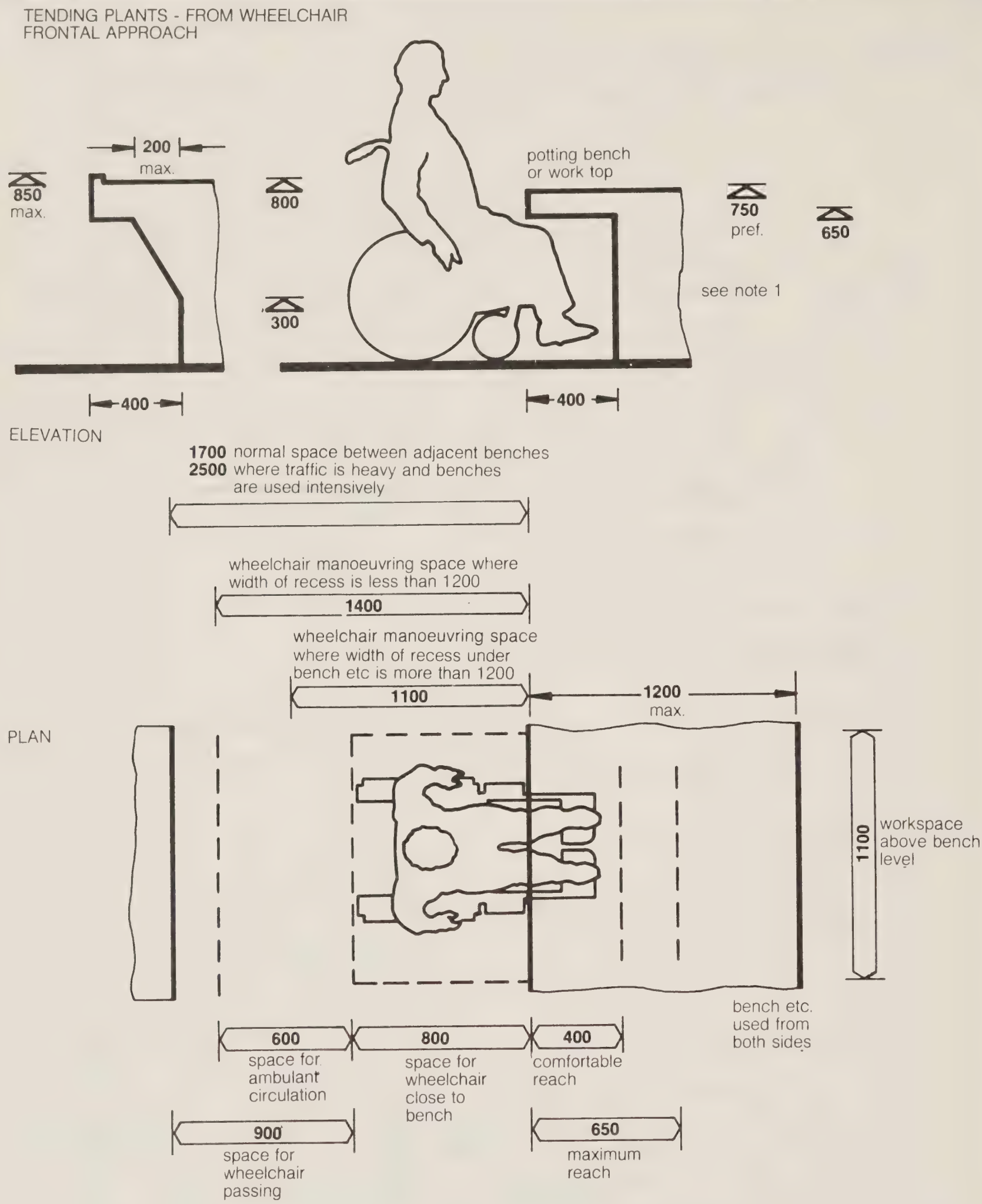


Fig.123

1350 *(1300)*

Preferred minimum *Restricted minimum (not recommended for general use: see explanatory notes)*

Notes

1. This applies to a fixed height bench or worktop. A variable height facility is preferred. For standing use range 950, 900, 850, 800. For wheelchair users range 800, 750, 700.

2. A corner position gives lateral support to standing users. Projecting walls of a similar height to the work surface will create a similar amenity.

Activities:
Rehabilitation - tending plants, see also Planting beds, wheelchair disabled users frontal approach and Planting bed, partially capable users

DHSS **Ergonomic data bank:**
Component-user data sheet, not to scale

Planting bed (3)

(raised) and potting benches

Users:
Wheelchair disabled including the elderly

TENDING PLANTS - FROM WHEELCHAIR SIDE APPROACH

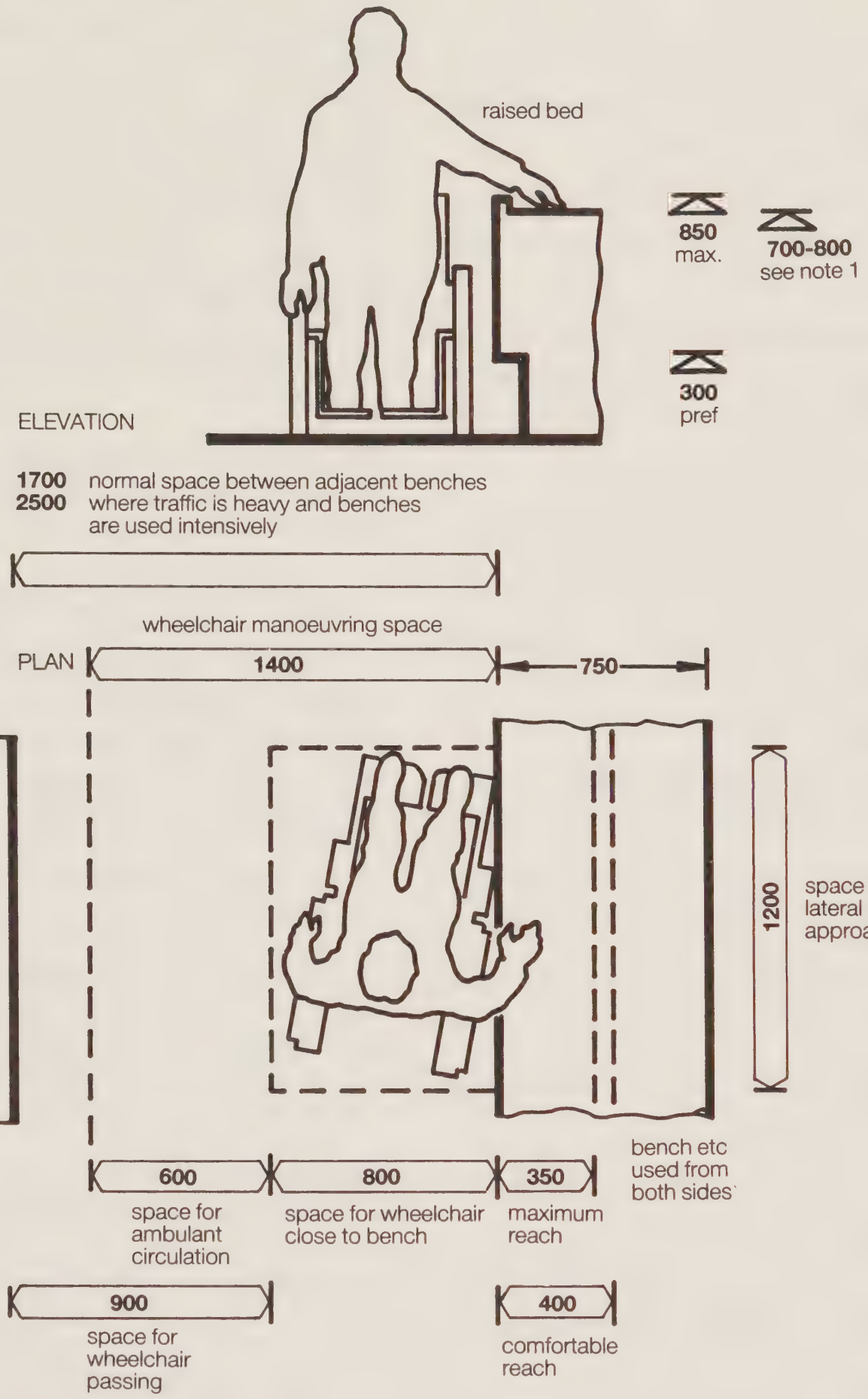


Fig.124

1350 *(1300)*

Preferred minimum: *Restricted minimum (not recommended for general use: see explanatory notes.*

Notes:

1. This applies to a fixed height bench or worktop. A variable height is preferred. For standing user range 950,900,850,800. For wheelchair users range 800,750,700.

Appendix 3 Health Care Premises: Check-list of access & facilities for disabled people

Parking

1. Are there parking spaces adjacent to the building(s) to minimise the distances to be travelled?

2. Is parking space wide enough to allow car door to open fully to allow unobstructed transfer into a wheelchair, either unassisted or assisted?

3. Is the location of the disabled parking spaces such that the approach route to the building/facility is not obstructed by other parked cars and away from moving traffic?

4. Are kerbs and other changes of level ramped?

5. Is the parking space and access route under cover?

6. Are there adequate signs to identify the reserved parking spaces and the best routes into the premises?

Approach to building

7. Is the approach route smooth, slip resistant (whether wet or dry), free from incidental obstructions or hazards?

8. Are handrails provided on all slopes and resting places provided at intervals where a ramp or approach is long?

9. Are all public entrances to the building/facility accessible?

10. Are access doors wide enough to facilitate wheelchair movement?

11. Are thresholds eliminated or kept to a minimum?

12. Do door characteristics and dimensions of related spaces allow it to be opened (and closed) easily by independent wheelchair users, moving in either direction?

13. What doors can be eliminated?

Internal circulation

14. Are lobby sizes adequate and safe both for independent and assisted wheelchair use?

15. Are corridor and approach routes satisfactory? Do they allow passing and turning and take adequate account of corridor traffic conditions?

16. Have all obstructions and projections from walls (or ceiling) or similar hazards at floor level – such as changes of level – been avoided? If unavoidable are they clearly discernible?

17. Are internal door widths adequate to allow turning through 90° from the corridor or lobby? Should either or both be increased?

18. Have safety handrails been provided on corridors, ramps, steps or at others points where they are required by persons with impaired mobility? Have they been produced where they can be used as locational aids by visually impaired people?

19. Are any large areas of glass close to circulation areas marked or framed so as to be clearly discernible to partially sighted people?

20. Are seats available at intervals to permit an ambulant disabled and elderly person to take a short rest when faced with long corridors to negotiate?

Vertical circulation

21. Are staircases safe and optimally comfortable for elderly and disabled people? Are handrail and landing characteristics satisfactory?

22. Are lifts available, conveniently placed, accessible and clearly signed?

23. Are lift controls accessible to the independent wheelchair user? Are the visual and audible signals, alarms and floor designations satisfactory? Are digits embossed and satisfactory for blind or partially sighted persons? Is there a tip-up seat, or a support rail available?

Toilets

24. Are there correctly designed Unisex toilets (ie where a husband and wife may enter the cubicle together) available in the public areas of the premises?

25. Are there suitable cubicles for wheelchair users in other male and female toilets in the building?

26. Do cubicles for wheelchair users provide adequate manoeuvring space within, or is turning space provided outside? Is the level of privacy afforded satisfactory?

27. Are there cubicles available with appropriate grab rails for the use of ambulant disabled people?

28. Are the WC and wash-basin arrangements accessible to independent wheelchair users? Are the grab rails, mirrors, towels, door closing bars and other aids placed satisfactorily?

Out-patient and treatment areas

29. Can ambulances discharge patients under cover within close proximity of the entrance? Are waiting areas protected from draughts as patients move in and out through the entrance doors? Can patients using wheelchairs (their own or hospital chairs whilst waiting for treatment), sit with other patients without obstructing the corridors or circulation area?

30. Can patients in wheelchairs use the reception desk conveniently and privately?

31. Are all consulting and treatment areas fully accessible?

32. Are there changing cubicles suitable for wheelchair users, with room for assistance to be given if required?

33. Are refreshment areas accessible to disabled people?

34. Are clear, well lit, signs posted to ensure easy circulation within the building?

35. Are telephones and other public mechanisms accessible to wheelchair users? Are knobs, dials, switches, handles and other controls operable and within convenient reach?

Ward facilities

36. Do sanitary facilities offer maximum independence and privacy to disabled patients, both those who will be using wheelchairs and those who have walking difficulties?

37. Is the day room accessible, with a variety of seating heights to help ambulant disabled people? Are all notices clear to see and understand?

38. Are window controls, radio and television and call bells easily reached by disabled patients?

39. Can disabled visitors conduct private conversations with their friends in bed or in the ward?

Other features

40. Could disabled employees work in the building – with particular reference to offices, laboratories, canteen, restrooms and toilet facilities?

41. Are emergency evacuation routes and emergency exits satisfactory?

42. Are fire alarms readily accessible to the semi-ambulant and wheelchair disabled? Are emergency call facilities installed to summon assistance to remote locations?

43. Are audio/visual alarm signals provided?

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Index of Subject Headings

	Paragraph No	*Page No*
Amenities for disabled people	1.9	3
Ergonomic Data	1.29	5
External environment	1.23	4
Fire precautions	1.18	4
Internal environment	1.25	5
Introduction	1.1	3
Scope and related considerations	1.7	3
Statutes and guidance specific to disabled people	1.17	4
Statutory and other requirements	1.15	4
Vertical transportation	1.28	5

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